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v. S. H. 1828.
SKETCHES

ON

AGRICULTURE;

OR, FARMER'S REMEMBRANCE,

ALPHABETICALLY ARRANGED:

IT WILL BE FOUND USEFUL TO THE GENTLEMAN AGRICULTURIST;
ALSO, AS AN ABRIDGEMENT OF THE WHOLE ART AND SCIENCE,
WHEN NOT AT LEISURE TO CONSULT THE MORE UNWIELDY
VOLUMES OF OTHER WRITERS.

IT ALSO CONTAINS A DEFINITION OF THE

IMPERIAL WEIGHTS & MEASURES;

WITH TABLES FOR WEIGHTS OF

PIGS, SHEEP, DEER, CALVES, AND BULLOCKS,

BY MEASURE;

ALSO, DIRECTIONS HOW TO ADJUST THE

BAROMETER TO ANY ELEVATION ABOVE

THE SEA LEVEL.



BY JAMES MITCHELL.

London:

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INTRODUCTION.

THIS may be considered as a second volume of Rural Affairs. The first, treating on Trees in general; this treats of Agricultural Crops and Stock; they are inseparably connected, viz. Landscape Farms and Landscape Gardens. Mr. West says, in his Guide to the Lakes, 'that a man of sense seems conscious of the importance of what he says, so every traveller will think better of him who plants judiciously.'

Trees are the pride and ornament, not only of Vegetation, but of Nature, also of the country; and however beautiful a mansion may be, it never seems grand without Trees as rural supporters. Again, Mr. West says, 'it is required of the pious votary of Nature to plant, and by so doing he assists Nature, and does honour to God, (he might have added to himself and his country.)' 'Planting, is too nearly connected with Religion, to be an act of indifference.'

I know by experience it is an inexhaustible source of amusement, viz. planting in winter,

observing their progress in summer, marking and arranging in autumn for winter, thinning and planting; the ultimate end is profit. The late Lord Sheffield told me that some of his fields were so wood-bound, when he bought Sheffield-place, in Sussex, that the timber was worth more than the fee simple of the land.

In the vale above Ferrybridge, and upon the banks of rivers Aire and Calder, is a good variety of thriving timber, that hath been judiciously planted in rows, clumps, shaws, belts, or screens, to break the current of winds, and shade for cattle in hot weather; the Arbeel do well here. At Stellingfleet, seven miles below York, the fields are small, viz. from two to six acres, each inclosed by thorn hedges from 5 to 10 feet high, cut so close on each side that they occupy less ground than a field wall, and the hedge-rows are full of first-rate oak, ash, and elm, at from 20 to 40 feet distance. Now had I heard or read of this, I should have condemned the small inclosures, high hedges, and the greatest part of the trees. I had a circuit of more than 120 miles in last week of July, and first of August, 1827, in which I saw no crops so good as in this district; fewer of the culmiferous crops; plenty of Mangel-wormel, Swedish, and English turnips, all drilled, but not on ridges, and all very clean. I have seen small inclosures, high fences, and hedge-row timber, most dogmatically wrote

against, and probably with good reason at the place where the writer lived, but here I consider the hedges and trees protect the crops, and the inhabitants of York, from the bad effects of the sea breezes, that the east winds drive up the rivers Humber and Ouse vale. Query—every one knows no crop thrives under the drip of Trees; but if the shelter gives a greater average per acre, why not let the head, foot, and side lands be grass, as permanent hedge-greens.

Below Ouse Bridge is a line of narrow-leaved English elms, 94 years old; when they were 30 or 40 years old, there was a broad-leaved English elm planted between each, that hath a novel appearance now, one being 6 or 8 feet circumference, the other 10 or 12 alternately, for 3 or 4 furlongs in length; but the good citizens of York have degraded the elms shockingly, by raising the gravel walk on each side above the coarcture or swell where the tree rises from the roots; consequently, instead of that bold majestic swell above ground, they seem as if plunged or stuck up to the knees in gravel; had they been planted so deep at first they would have died, and as they are they must decay half a century sooner. Be sure to avoid deep planting—this is the planter's grand secret, in removing trained trees of 10 or 12 feet high for Dot Planting.

27th August, 1827.



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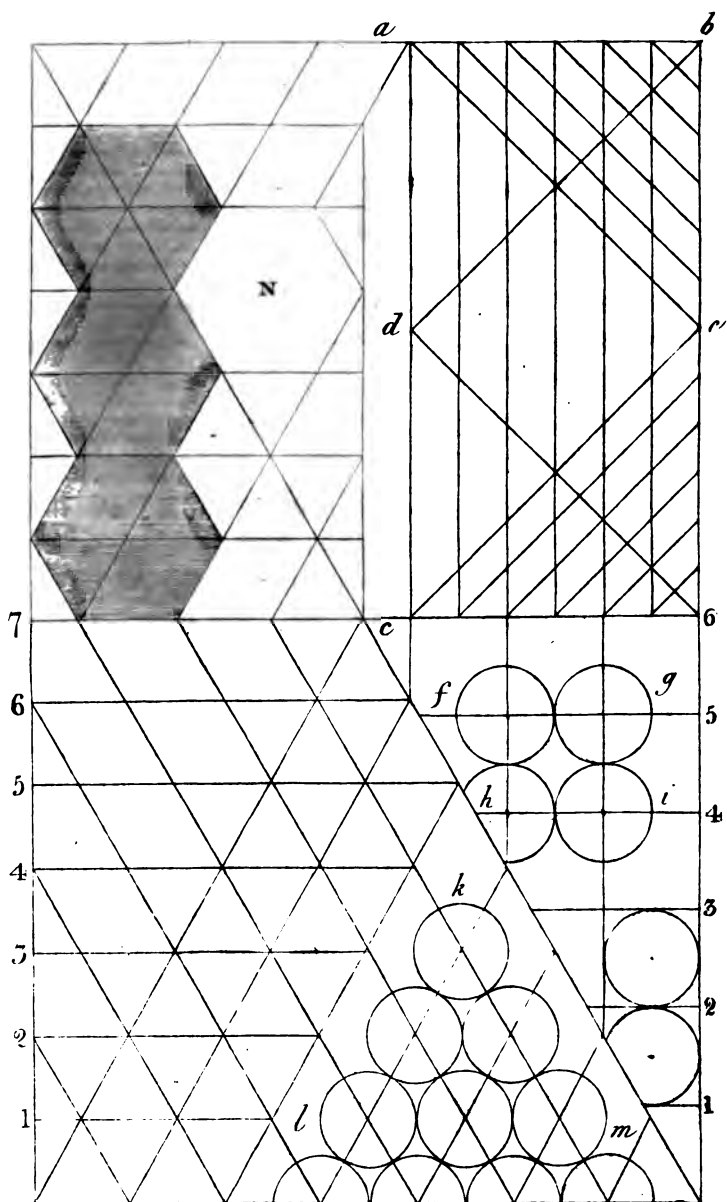


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I do not presume to lay down dogmatical rules for Agriculturists; these concise Sketches are intended as a social companion, by reciting of real practical knowledge of general use, with brevity, and free from speculative theory. Any rules for Stocking or Cropping may be profound wisdom in one place, and ridiculous nonsense in another. The mode of Stocking and Cropping depends upon the nature of the soil and climate, which varies much in this Island; for near the sea level, in the south, they calculate upon four to six months absence of frost during summer; we calculate of from four to six weeks absence of frost upon the summits of the Yorkshire mores, and that is in July and August, therefore it is of essential importance for the Agriculturist to make himself acquainted with the soil and climate he is in, before he can know when and how to crop the land. My DENDROLOGIA, or first volume, page the 4th, shews all climates as they are caused by hills or

vales, from the Aquator to the North Pole. The Agriculturist's leading maxim should be always to have the lead of seasons; by timely plowing he is enabled to take every advantage of the weather—to get his seed into the ground in good order, by so doing his crops will always be as forward as the soil and situation will admit of, which is a great advantage in harvest work. Early laying up of meadows is equally economical;—making memorandums when in the fields, as ideas may arise, will be found useful notes, and entertaining by the fire-side in winter evenings, by which new ideas will arise. Thus proceeding, Sir, you will soon find these rural avocations not a toil, but the most healthy exercise, and rational amusement, that ever delighted the mind of man.

Oldfield House, near Kelghley, Yorkshire.



Polymetes, says, in a note, page 309th, that all the Vale of Lombardy hath the appearance of a wood at a distance, by mixing rows of olive trees, mulberry trees, elms, and vines, in the corn fields. The ancient Grecians dreaded eloquence as much as falsehood; now my rustic muse is not an eloquent one, nor am I an advocate for too much hedge-row timber in arable farms. I have read some where that a great book is a great evil, and I do agree most cordially with the remark when applied to rural affairs. It is usual with most authors to compliment some great personage as a Patron, with a Dedication; I consider all my readers as patrons, and if they read with as much care as I have wrote they will not be disappointed, as the whole hath been dictated by sober truth and reason, engrafted upon experience, which ramifies into so many branches when upon a large scale, that it requires a sound mind, with indefatigable application, so as to see with his mental eye at a glance into every department. Such a man sees things as they are, and by the bare inspection of the countenances of his stock, he knows if they are well or ill.

To give the slightest glance at the multifarious contents of this Manual, would be as absurd as writing an Index to a Dictionary. A Farm may be compared to a Violin; the best of musicians cannot play well, if he does not keep his instru-

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from tree to tree; and if they be Apple Trees, they should be grafted upon Paradise Stocks, for if upon Crab Stocks they will grow too large for small gardens; their tops will protect the bloom of Peaches, Nectarines, and Apricots, better than branches of Evergreens nailed up, or covering with Nets, Mats, &c., as it is not the frost alone that kills the blossoms, but the sudden thawing, as butcher's meat and potatoes frosted are preserved by thawing in cold water, but totally destroyed if emerged in warm water. Thus the blossoms are destroyed by the sudden transition from frost to sunshine for want of such shade, nor is any other so naturally genial. Poplars might be planted between each Standard, to fill up until the Apple Trees wanted the room. There is more bloom destroyed on south and south-east aspects, than all the other points of the compass, for want of sunshades. No other Trees are so well adapted for south side of Orchards, and south fronts of large gardens, as the narrow-leaved English Elm; when grafted upon the broad-leaved English Elm they never throw up suckers from the roots; be careful to plant them at least 20 feet distance, so that the drip from them cannot injure any thing they are meant to protect; they should be planted at 20 to 30 feet distance from tree to tree, with three Poplars between each, to stand until the Elms want their room; the nature of the premises, as to size,

shape, hanging, or level, will suggest the best sort of screens, and the best places for them.

I am so thoroughly satisfied as to the utility of shelter by the shade of trees, that five years' back I had the east and south walls of my garden taken down, and set 30 feet back, in order to admit a plantain inside of forest trees mixed. Last winter, to prevent them having naked stems, I had them thinned, and the Trees taken out were planted in a young Orchard, between every Apple Tree for shelter, until the Orchard Trees want the room; then the Forest Trees, thus nursed, are noble plants for hedge-rows, avenues, groups, and dotting single trees: thus nature may be assisted, but we cannot make climates. On 1st of August I saw ripe Aurline Plums at York; my Aurline Plum-trees hath every advantage of soil, sun, and shelter, and are nailed to a brick wall, same latitude as York, and three minutes or 45 miles west, but is one thousand feet higher; that makes the climate equal to the northern extremity of Scotland, (see my *DENDROLOGIA*, page 6th.) My first ripe Aurlines was 5th September. I saw wheat cut near York, on 4th of August; our first was not cut until the 13th of September. Our place is on the north side of a valley, a mile wide and 500 feet deep; we are midway between bottom and the summit.

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ABORIGINES are natives of the soil from the earliest times, whose origin cannot be traced; such are the Welch people, wild cattle in Chillingham Park, Northumberland; Oaks, Thorns, &c., with most sorts of Weeds.

ACRE, (see Measure.)

AFTERGRASS is grass grown after hay-time; in Middlesex it is frequently mown for hay, called rowen: in other counties it is generally eat by dairy cows, and is worth forty or fifty shillings an acre, to be eat until Candlemas or Mayday, but that injures the next crop of hay. Where hay is the great object, the fog is allowed to rot; some mucks upon that, others limes upon it; it is oftence mucked, directly after hay is cleared off, and fed off in winter and

spring; again, others feeds it off in the autumn, and mucks in winter—all these ways are practised on the Yorkshire hills.

AGISTMENT STOCK is cattle taken in to grass or summer pasturing, twenty or twenty-one weeks, from Mayday to Michaelmas, at prices governed by quality of grass, situation, &c. The following may be considered as above an average:—

	£.	s.	d.
Horses,	6	10	0
Three year old colts,.....	5	0	0
Two year old colts,	4	0	0
One do.	3	0	0
Old cows,	4	10	0
Three year old cows,	4	4	0
Two year old do.,	3	3	0
One do. sturk,	2	2	0

See—Gise Ground.

Care should be taken not to overstock—to have plenty of water, and a good bull.

AGRICULTURE is the art of Farming, and next in antiquity to Gardening. Adam was a gardenér, Cain was a grazier, and Abel was a farmer.—*Genesis*, 4 *ch.* 2 *v.* The first or grand basis of all arts and sciences; it is a universal manufactory, that employs a wonderful variety of machinery, worked by hand, by horses, wind,

water, and steam, to produce and finish his articles for market, which are very numerous, as hay, corn, straw, wool, cotton, silk, flax, hemp, cheese, butter, geese, ducks, poultry, beef, mutton, pork, oil, wine, spices, &c., are all manufactured, as finished articles, before they are sent to market, all by manual and manifold labour. Methinks I hear a demur—raw materials; the word raw is synonymous, except in shambles.

The sugar baker hath raw sugar to work upon, but it is a finished article, manufactured from the sugarcane. Raw silk to silk mercers, and raw cotton for cotton spinners, for cotton manufactories we have none; it is grown and prepared, alias manufactured fit for market in a warmer climate. Raw flax and raw hemp are also manufactured and finished articles; this proves that agricultural produce is not only finished, but are primary or first articles of manufactures, all the others are but secondary manufactures.

Yet the word raw is a proper term with manufacturers, for when the finished articles as they call them, which consist of wool, cotton, silk, hemp, and flax, webs, pieces, cuts, ends, &c. are worn to rags, they are carefully collected and sent in packs to the paper manufactory, where they assume the appellation again of raw material, and are manufactured into various

finished articles of papers, of numerous gradations, from coarse press boards to writing paper, and up to bank note paper. One more stage in this definition, and I've done, viz. waste paper, beef, mutton, poultry, pastery, &c. are all returned to the farmer under the epithet or appellation of manure; it is a kind of oil, to work the machinery in for a reproduction of belly timber, and other articles used in the circle of sciences, which is in perpetual motion.

AGROSTIS STOLONIFERA, or creeping bent grass, alias Fiorin grass of Messrs. Richardson and Preston; it is wonderfully productive in situations that suits it, as in the Orcheston meadow, in Salisbury plain, Wiltshire. It is a prolific grass on the sides of Cheviot hills, in Northumberlandshire, whose soil is a peaty marle, and moist climate as Ireland; in the south it hath but one good quality, viz. in pastures; it springs up in July as a second course, with the *agrostis canina*, both are known by their chocolate-coloured tops, neither of them ever comes early enough to be cut with other grasses for hay, in dry soils and climates.

ANIMAL MANURE. A northern gentleman writes that he examined some ground which he found deficient in animal substance, he made up the deficit, by putting more than forty half

horses to so many fruit trees. Would ~~not~~ so many cart loads of clay marle, and half as much farm yard muck, been a better substitute, and more natural : for such a mass of putrid matter, at the root of a tree, must be obnoxious to them; the roots must have been deep to admit of half a horse to be buried upon them, the putrid effluvia would draw the neighbouring dogs in comment.

ANOMALOUS, or Eregelar, as the depredacious ravages committed by fly or jumpers on young turnips, chrysalis or wireworm, and other grubs.

ANTLIERS, (see Deer.)

APOSTATES are men who change their religion, or swerve from sobriety and industry to sottish idle habits.

ARATION, or plowing.

ARATOR, or plowman.

ASH is of all other trees the vilest robber of corn land, yet it should have a place in corners of fields, as it is of all others the most useful to the farmer; when young it makes good plow tackle, as wippin trees, stretchers, sheeps' hay-

cribs, &c. I had one tree cut down in a pasture field forty feet clean stem, and six feet four inches round in middle—rare stuff for plows, harrows, carts, waggons, &c. &c.

ASKERIDES, or needleworms in horses, are destroyed by purging.

ARUNDA PHRAGMITES, or common reed, in dry situations is not a bad grass, but by river sides it will grow from six to ten feet high, and makes the best of all thatch for buildings, except hoopmaker's chips, as used in east part of Sussex.

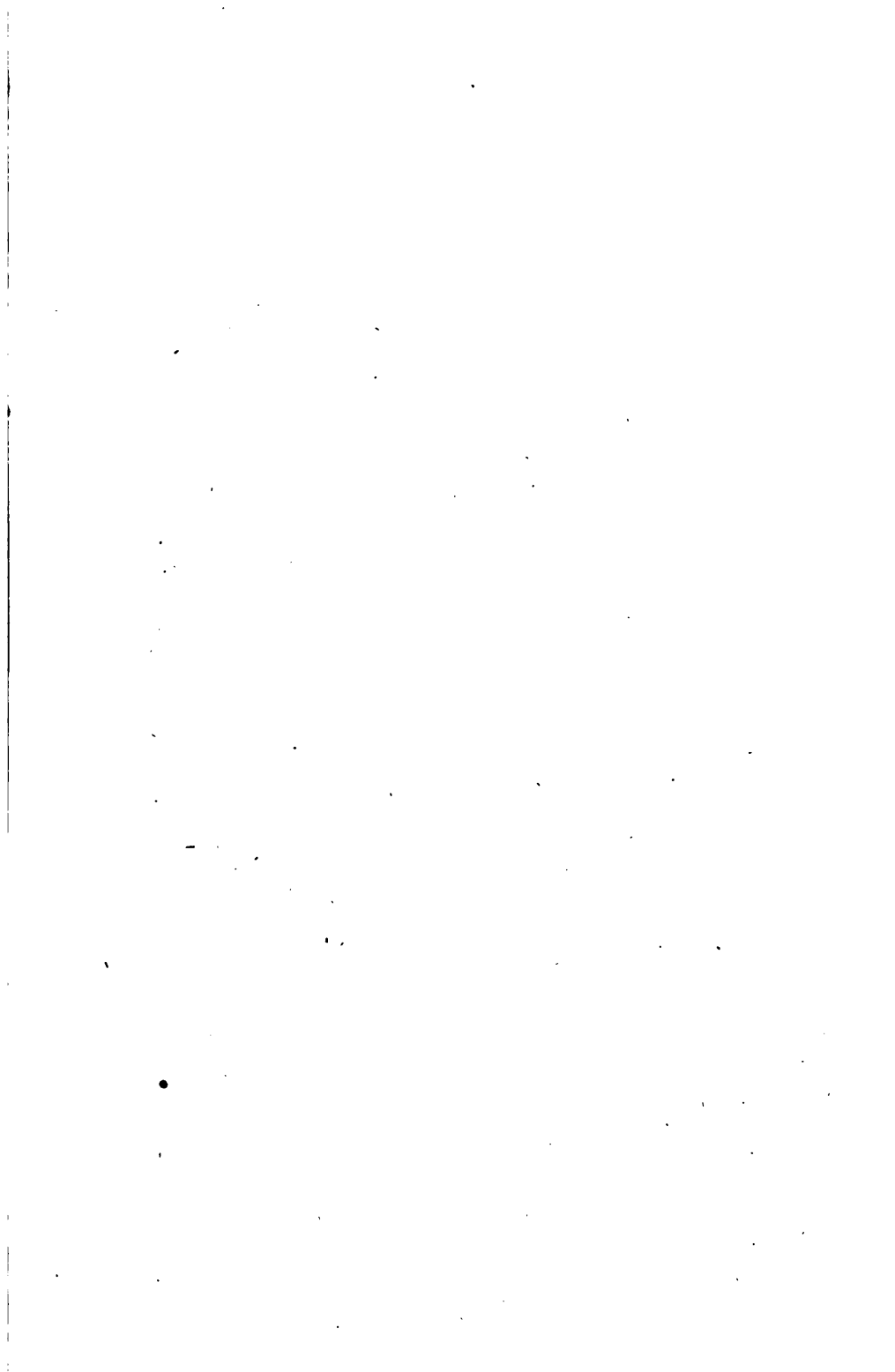
ASILUS TABANUS, or gadfly, alias brie.

ATTIRE, (see Deer.)

ATMOSPHERE consists of all sorts of substances as composes the earth, raised by evaporation, which is the food of plants, and a screen that prevents us from seeing stars by day.

AVER CORN, a name originated in old feudal times, for oats sent to landlord's granary in lieu of rent in money, hence the Yorkshire oatbread, called haverbread.

AVERAGE of crops per acre, through all



BACON, (see Salting Pigs.)

BARBELS, or **BARBS**, are excrescences or knots of flesh grown under the tongue of horses; they are to be cut off and mouth washed with salt and water.

BARLEY, long or common, hath only two rows of grain in the ear. Bear or winter barley hath four rows in the ear. Russian barley, big, hath six rows of grain in the ear. Siberian, or naked barley, as the Russian, is not much sown, on account of their short straw. Sprat, or battle-door barley, alias rath-ripe barley, hath flat short ears. 35 to 39 bushels is a fair average crop per acre, at 50 to 54lb. per bushel, and a cube inch box will contain 250 grains. Thin barley of 45lb., 330 grains per inch. Coarse barley, from rich land, weight 48lb., 220 grains per inch. I gave 37lb. of meal, and made 51lb. of bread. Land, intended for barley, in the eastern part of Hertfordshire, is plowed up into three or four bout ridges, called stitching, to be mellowed by winter frosts, as the land is strong clay marle. In spring, these stitches are cast or cleft by beginning to plow in the furrows, and finishes in the ridges; it lies to get half dry, then harrowed once over, and sown with four bushels of barley per acre; their harrows are same width of stitches, but are laid across the

furrow, and the horses work in the furrow, harrowing two half stitches at a time, so there is no treading but in the furrows; after this the head and foot lands are plowed and sown. When the barley is three or four inches high, the grass seeds are sown, and rolled in, with a roller seven foot long, thick in middle and smaller at ends, tapering so as just to fit the half stitches, the horse walking in the furrows, as in harrowing. Barley in most other places is sown after turnips, that hath been eat off by the Couples, *i. e.* ewes and lambs, in spring. When barley is three or four inches high, sow the grass seeds, as above stated, and roll them in with a barley roller. Marsh meadow, on the Kent side of the river Thames, broke up and fallowed a whole year, and part planted with potatoes, other part sown with turnips—the sides of field were higher than any other part, by the scourings of marsh ditches being thrown upon the head and side lands, which kept the middle of field too moist: the potatoes were good on dry sides, but miserably curled in the interior, through the ravages of wireworm;—here, two inferences may be drawn; first, that strong moist situations is favourable to the wireworm; second, that wireworm and other insects are the cause of curle in potatoes, in the winter after. I had all the high sides carted into interior; spring followed and seeded for permanent meadow; I had in-

tended to sow no corn, but was persuaded to sow barley,—I sowed fourteen acres with twelve bushels of barley, one half broad-cast, other half with Cook's drill machine, at nine inch intervals, on twenty-third April, 1805; the barley and grass seeds was up in Breward, on 10th of May, barley shewed second blade on 15th, third, on 19th, fourth, on 23d, with suckers, or side shoots, called tillering; 1st of June, fifth blade, 12th, sixth blade, and eighteen inches high, 23rd, two feet high, with seventh blade, or leaf, which formed the spatha, sheath, or envelope, of ear, 1st July, out in ear, commonly called shooting; on 10th, in bloom, on 20th, it was a yard and a half high, with eighteen stems from one grain,—ears six inches long, and thirty-two to forty grains in the ears; on 21st, rain, with a south west wind, lodged, or laid it all as flat and even as possible, except it had been rolled all one way; began harvest 26th August. *Polygonum nigra*, or black bindweed, called in Hertfordshire, hartweed, had grown through it, so that I was obliged to give nine shillings per acre for mowing. In middle of the field was nearly an acre, much injured by wireworm; there the red also white clovers was a thick heavy crop, in full bloom, that had smothered all the natural grasses—thirteen acres of good barley had smothered every thing but root weeds.

I was obliged to cut a road through the field,

in hay-time, to get at a meadow, the result was the salvation of grasses: had the whole been cut at that time, and sent to London, for green food to horses, as is done with green rye and tares, it would have raised a vast sum of money, and saved all the grasses.

Mr. Curtis's treatise on grasses was my oracle, and the result proves the absurdity of theory without practice. There were only four pounds of red clover-seed per acre, yet it was such a crop as to smother all the other grasses. There were short of seven gallons of barley sown on each acre, and that destroyed the clovers, which proves that we waste much seed, by thick sowing in rich lands, and seriously injure the crops. Paid for turning swathes, sixpence an acre.

Ditto Ditto second time, sixpence Ditto.

Ditto for cocking three swathes into each row of cocks, at five-pence an acre.

Ditto for raking and cocking rakings, sixpence an acre.

Finished in-ing in five days, on fourteenth of September, with three carts and three horses—the field one mile from barn, forty-nine and a half loads, besides nine and a half loads of rakings: viz. twelve loads per day. I could not get the barley shorn under a guinea per acre, and in order to ascertain its value, I employed a good shearer: one day, he cut thirty rod, perch, or pole, and laid it in bands, but neither bound or set up;

the thirty perch produced two hundred and ten sheaves, viz. seven sheaves per rod; in October, they weighed eight pounds, seventenths per sheaf, the two hundred and ten weighed one thousand eight hundred and twenty-six pound, or four ton, six hundred, three quarters, and twenty-three pound per acre; total fourteen acres, sixty ton, seventeen hundred, three quarters, and fourteen pounds.—(See Harvest.) I had the sheaves thrashed separate.

Straw weighed	1080lbs.
Nine and a half bushels barley weighed	456
Barley-anes, dust, and waste in straw	
trussing.....	290

Total, as above 1826lbs.

This gives fifty and a half bushels per acre, and nine and a half bushel barley gase, thirty truss of straw, or four and a half load per acre,—a load is thirty-six truss, weight each 36 pounds; viz. eleven hundred weight, two quarters, and eight pounds; cost two-pence halfpenny per truss thrashing.—Barley husks, or skin, one bushel in fifteen, or one pound in fifteen.

BAROMETER, or Weatherglass, is the only true index the farmer hath to the weather, but for want of knowledge or want of attention in the makers, they are much out of repute in hilly

districts; there are but few that shews the same elevation.—The reason is, they invariably set the bottom of scale to twenty-eight inches above surface of mercury at bottom of the tube: that is correct at sea level, but for every hundred feet the barometer hangs above the sea level, the scale should be one tenth of an inch lower, so that they who are situated one thousand feet above sea level should fix their barometer scale at twenty-seven inches, instead of twenty-eight, or else the quicksilver, called mercury, will stand at much rain when it ought to be at changeable. Some people have tried to obviate this, by shortening the scale half an inch, and leaving a quarter of an inch at top and at bottom, without a name, thus the parts below changeable are too high, and those above are too low, even at sea level.—If the editors of newspapers were to publish the meteorological journal monthly, from different seaports,—Hull, Boston, Yarmouth, Portsmouth, Bristol, and Liverpool, with London. Every one, desirous of rectifying his barometer, might, by keeping a journal only a month, and compare notes, and whatever the average difference was, suppose quarter of an inch, proves he is situate two hundred and fifty feet above sea, and his barometer tube wants raising a quarter of an inch, or the scale lowering so much.

BEANS, (Horse) Vicia Var Minor or Faba. Large ticks, or white harrow bean, 13 per inch cube. Small ticks, from 30 to 50 per inch, according to soil they grow upon. Heliagoland bean, 41 to 50 per inch; all three sorts when good and dry will weigh as wheat, 64lb. per bushel, and husks, one bushel weight in four quarters. 33 bushels an average crop, but like all other grain may be doubled or trebled in particular places and favourable season. Three bushels per acre when sown broad-cast, and six to ten pecks per acre when drilled or dibbled according to distance of lines and quality of land. Just before they come up, the ground should be well harrowed, to kill the annual weeds, and when three or four inches high, sheep may be turned in a few hours, in middle of day, to eat charlock and other weeds, and where rows are too close together for horse hoe, they will want to be twice hand-hoed afterwards—they and wheat affect a strong moist soil.

As soon as harvest is over, plow for beans, and in autumn cross-plow, and when weather will admit plow again longway, called stretching, water furrow, and grip with spade as carefully to let off the water, as if sown with wheat; some sows broad-cast, and harrows in; others sows broad-cast, and plows in; while others sows every second or third furrow, called sowing under furrow, as pease. If weather permit begin

sowing or planting in January; early planting always produces shortest straw, but most pods, and ripens sooner.

There are drill plows, and other drilling machines: a friend of mine hath a drill machine, but he generally lends it, and hath his beans dibbled by hand, although he generally grows from seventy to a hundred acres annually; his motive is employment for his mens' wives and children, which keeps them out of poor book. Tick beans, twenty-eight in a cube inch, planted last week in February, on sunny or north side of a valley, they was up 24th April, bloomed well 15th July; it was an abundant crop, but never ripened, on account of climate being one thousand feet above sea; a rod or two at top of field was an old rotten peat bog I had drained there; the straw grewed seven or eight feet high, but no beans for want of four or five feet intervals, instead of eighteen inches, to admit sun and air. 28 beans per inch, or 1340 in a pint, planted 223 feet of line; now as there is 195½ feet in side of a square acre, there will be 130 lines of 195½ feet long multiplied gives 25,415 feet per acre; then beans, 28 in a cube inch, is 980 beans in a pint; as two beans were planted in each hole, gives 490 holes at 3 holes per foot, is 163 feet to a pint. Divide 25,415 by 163 gives 156 pints to the acre, viz. 19½ gallons. An active man will dibble 900 holes

per hour ; thus value-price for dibbling a gallon may be ascertained by the number of holes required for a gallon of beans. White harrow beans, 13 to inch, is 455 in a pint, and two beans to each hole is two quarts per hour.

Large ticks, twenty per inch, is 700 in a pint.

Small ticks, at forty to an inch, is 1400 to a pint.

Heliagoland beans, at fifty in an inch, 1750 to a pint.

I had a long narrow field of ten and half acres, upper part sandy, lower part clay, upon substrata of chalk, it was wheat stubble ; when I took to it, valued at five shillings an acre to rent, as valued by the Duke of Richmond's agents ; winter after I took advantage of a dry frost, and with three carts, five horses, and five men, we exchanged sand for clay until each end had fifty load per acre, spread and plowed for beans. In February and March the flat half was sown broad-cast with tick beans, and the sandy end was dibbled with white harrow beans, one in a hole, at four-pence a gallon, in lines twenty inches apart. $10\frac{1}{2}$ acres produced fifteen waggon load of sheaves, and thirty-three quarters and six bushels of good beans. Tick beans was earlier and much better crop than the white harrow, it runs too much to straw ; hence its lateness. I have seen it recommended to drill pease with beans ; but as pease comes to harvest in July, and beans in September, how is the farmer

to act. I have stated above that the field was wheat stubble when valued, in 1806; it was beans in 1807, wheat 1808, beans 1809, wheat 1810, again beans 1811, but the ground tired of such bad usage, as plowing once a year and no manure. Never cut off the tops of beans in bloom; it is the leaves feeds the pods; and pods feeds the beans.

BEAVY GREASE, or fat of a roe, the female of a hart,

BEAR or Winter Barley, hath four rows of grain—it is much grown in Scotland.

BIGG, is six rowed winter barley—it is from Russia.

BEBB, (see Brewing.)

BEER SPRUCE, is made from young shoots, and young cones of spruce fir fermented and sweetened with treacle, (see Wine.)

BEESTINGS, the first milk after a cow calves; it should be taken clean as possible, by milking the cow, as it is apt to make the cow a bad milker; the beestings, if given to calf, are apt to surfeit it, on first drawn, (see Calves.)

BEE, (see Mangel, Worzel.)

BILLITINGS, the ordure or dung of a fox.

BLACK CURBANTS, (see Wine.)

BLACK LEGS, black spault, or quarter ill, alias hyems, generally attacks calves at twelve to fifteen months old; when getting into good condition—symptoms, lameness, and skin crack if handled on hip or shoulder—scarify the part and bleed in neck vein, keeping the calf walking twenty-four hours; rub salt upon the cuts made by scarifying, and throw cold water over it profusely. I lost one lately; the blood settled into bowels; when it was three months old it leaped from a grass plat upon a hard road eight feet below, which shook it so that it never was cheerful after, and I am inclinable to think the cause is generally owing to a shake the calf receives by falling into the hard group in mistal, alias cowhouse, from the cow that calves standing, as I never heard of the disorder in the south; perhaps, bleeding as soon as the calf is in thriving condition, might prevent the fatal effects.

BLENDWATER, alias redwater. For a cow take four ounces of oil of turpentine; one ounce of bole-ammoniac, powdered, and given cold in

one quart of skimmed milk; rinse the bowl with a quart of spring water, and give her that, and let her fast two hours after; if she is costive give half an ounce of jalap in a quart of new ale warm, with half a pound of treacle; for an ox five ounce, and for a bull six, if above two year old.

BLACK SCOUR, in lambs, prevented by giving two drams of salt to each, holding the mouth close to moisten it, and they will then swallow the salt. Three to four drams to older sheep. If the sheep have got the disorder, repeat the dose every other day, until it stops, or one spoonful of tar to lambs, and two spoonful to sheep.

BLIGHTS, are atmospherical, consequently no nostrum will prevent, or cure after, but the insects may be destroyed by washing with pure water, impregnated with some mineral, as lime, sulphur, &c. Blights are a kind of interrupted perspiration, which is fatal to both man and beast; to prevent it in corn as much as possible, till and manure the land well, sow early, and keep it clean of weeds; and to keep fruit trees healthy as possible, destroy moss by lime water grout, heal wounds by tar, prune and heal the cankered places, stop the oozing of gum by lime, but never blame the barberry bush; and when corn is blighted, let it alone until it is as ripe as its nature admits.

BLISSOM, or Rout, heat, a desire in ewes for the male sheep.

BLOOD, in cattle equal in weight to pluck ; and head averages at same ratio, (see Weight of Cattle.)

BLOOM, of wheat, usually about 30th June, and takes a month afterwards to ripen ; but in dry summer, in 1818, the wheat harvest commenced 18th July, in Buckinghamshire.

BOTTLING BEER. Clean the bottles well and let them be thoroughly dried, or else they will cause the beer to become mouldy or mothery. If the beer be a little flat, put about the size of a walnut of loaf sugar in each bottle, and be sure to use new corks.

BOTTS, brevis or cassiores, a species of worm or grub infesting horses, and other cattle, generally in spring, and are frequently seen in the vents of horses ; to destroy them, give a handful of stone-crop in a warm mash of bran and oats, repeated three times. (See Flies.)

BORE COLE, green cole, or Scotch cale, brown cole, and Brussels sprouts, are all of the open kind, and never can compete with cabbages and turnips. The thousand-leaved cabbage

is a mule of the cale or cole tribe; any of them might do instead of rape, and Brussels sprouts, I believe to be more productive in spring feed than any other.

BRANK, (see Buck Wheat.)

BREAKING up of deer, viz. quartering them.

BREAKING, when a hart breaketh hard, and draweth to the thickets or covers, it is termed taking the hold or going to harbour.

BREAKING up old grass land; lime is laid on to destroy wireworm; some limes previous to plowing—it is a bad plan, lime gets down quick enough without plowing it down. (See Pareing.)

BREAST, or essay of venison.

BRAIRD, alias breward, corn just got green above ground.

BREAD,—34lb. of flour will make one quarter loaf of 4lb. five and half ounce weight. Bakers are to make 20 peck loaves from a bag of flour, which contains twenty pecks of 14lb. or 280lb. the sack, alias bag; but if the wheat

be good, and flour kept six or eight weeks, then three pounds will make a quartern loaf, and the baker clears forty pound of flour, besides seven shillings and sixpence allowed for baking. (see Wheat.) The baker's sponge is decomposed by fermentation, and loses one-fifth of its weight in baking, (see Fermentation.)

BREEDING and rearing stock—the farmer should always pay great attention to the shape and quality of the female, and procure the best of males for them of any breed he may think best adapted for his farm, and keep them well. Some of our great breeders allow their young store bulls as much milk as they choose to suck themselves; having never been weaned, they are turned out with two or three milch cows, as nurses.

BREWING. Put as much boiling water into mash tub as is to mash; that will be six gallons to every bushel of malt, let it stand until the steam is gone off, so that you can see your face in it, then let one person put in the malt while another is stirring it, save as much malt as will cover the mash, and then cover with sacks. When you let off, catch the first wort until it runs fine, and return it to the mash, three hours after mashing; by this time the copper will boil again,—cool the water as at first, and keep stop-

ing, leeking on, and mashing, until the quantity is run off that is required, allowing one fifth for loss in boiler, cooler and working; then empty the boiler, put in a little wort and rub in the hops,—three pounds to every sack of malt; add the rest of liquor, stir the hops well in, cover up, and in thirty or forty minutes it will boil, and in ten more it will break; then pass it through a strainer into cooler, and in three or four hours it will be cooler than new milk, it is then fit for work tub; add the barm then, and next day stir it up to the bottom, in thirty or forty hours it will be ready for the barrels, which must be clean, dry, and warm, or else there is a hazard of having motherly beer. As the beer works in the casks, keep filling up, but not with what works out. One gallon of beer from each gallon of malt is good where no small beer is wanted.

BRICKS, statute at nine inches long, four and a half wide, two and a half thick; weight seven pounds and thirty-five parts; three hundred and five; one ton; seventeen bricks, one cube foot, or one hundred and twenty-five pound; eighteen feet, one ton; and fifty-eight feet, one thousand of bricks piled close, without mortar. I have weighed old bricks, in Dorsetshire, of statute size, that only weighed five and a half pound; N. B. Fifty-eight feet, close piled, is a thousand, and one hundred and eighteen feet, thrown pro-

miscuously together, is only one thousand. Cleaning a thousand old bricks and piling fit for measuring, half a crown.—A cube yard of loam will make six hundred of bricks.

BRIE, breze, gad flie, ox flie, burrel, or wornil flie.

BROCKET, a red deer, two years old.

BRINEING HAY, is to sprinkle it with salt, at about eight to twelve inch courses, when making a rick in a bad season.

BROKEN WINDED HORSES, to be fed with carrots, and when no carrots, wet their hay and corn with chamber lye, or water; they will not hanker after water so much.

BRUSH, or Drag, foxes' tail, and tip at the end is called chape.

BROWSE, or Vert, is any thing bearing green leaves and fruit fit for food, or shelter; as nuts, service berries, haws, crabs, acorns, &c. down to fern, for shelter, hence the keeper, or verdurer, whose office it is to look after vert, or verdure: (See Hautboys.)

BROOM, or *genista tinctoria*.

BUSHEL, Winchester, 2150 cube inches and forty-two parts. (See Measure.)

BUCKWHEAT, or Brank,—*polygonum fagopyrum*, is an anual; four hundred grains per inch; weight, forty-eight pounds per bushel; same value as barley to distillers; average crop thirty bushels; seed, per acre, two bushels. It is good corn for horses, pigs, poultry, and pigeons; partridges and pheasants will find it at a mile from the woods: May is best time to sow it, but it will ripen its seed, if sown, in July, on sandy or gravelly land, which it likes, and will occupy the ground eighty days: when ground cannot be got ready soon enough for barley, it may be sown, and will be more profitable than a bad crop of barley, and grass seeds may be sown with it, and should it grow too strong for the grass seeds, mow it green for pigs, cows and horses, when in bloom; it may be sown in July or August, after a crop of tares, and plowed in, in October, as manure for wheat. Its three-cornered grain makes the most delicate white flour and the straw is as good as barley straw.

BUCK BEAN, *menyanthes trifoliata*, or marsh trefoil, said to cure sheep when affected with the rot, and that by instinct they will seek for it; if this be true, it would be worthy the flock mas-

ters' attention, to cultivate a little of it until they had ascertained the fact.

BUILDING. A rod of brick work requires five thousand bricks, or twelve ton of flints; fifty bushels Sussex chalk lime, five tons sand, and seven pipes water.

Stone walls at Bath, twenty inches thick, requires thirty-two bushels of lime; weight, one ton, at four-pence a bushel,—this is chalk lime: London brick walls, fourteen inches thick, takes four thousand five hundred bricks, and thirty-seven and a half bushels of chalk lime, and two and a half loads of sand, *i. e.* two and a half cube yards; the lime hot from kiln, thirty seven pounds per bushel, but in twenty-four hours exposure to air, it will weigh seventy pounds—two hundred and seventy-two superficial feet is a statute rod, (see Lime.)

BURNISHING SEASON begins twenty-sixth August, and lasts to twenty-sixth September, when deer rubs the velvet from their horns, at which time they knock brakes, brambles, and any bushes that come in their way, all to pieces.

BUTTER, in making, add one ounce of salt to each pound of butter; some allow half an ounce of salt, and a quarter of an ounce of salt-petre, well mixed and bruised with a paste pin:

to keep two or three years, four ounces salt, two ounces saltpetre, and two ounces moist sugar, well mixed with eight pounds of butter; if it is used under six months, the saltpetre will be tasted. Dorsetshire butter always fetches best price in London of any other; their practice is one ounce of salt bruised to powder, for every pound of butter; the tub is made quite wet when the butter is put in, and covered at top with clean water, head of tub is then put in, and hoops tightened; tubs are made to hold twenty-eight pounds, and fifty-six pounds: it is no uncommon thing with butter dealers in London, to change Dutch butter into Dorset tubs, to impose upon their customers.

BURNET, *poterium sanguisorba*: I never knew it sown as a crop, but as it is a wholesome plant for sheep, and an evergreen, it is a desirable variety, and a pound or two of seed should be added to the grass seeds sown on every acre, when laying down for permanent pasture, on thin weak soils.

BURREL FLIE, (see Brie and Flie.)

CABBAGE, *Brassica arvensis* and *oleracea*; the large drum head, or Dutch and Scotch sorts, are best; when wanted for winter use, sow the seed by tenth of August in the garden, two

thousand eight hundred seeds in a cube inch, two inches will be almost an ounce weight; one and a half ounce of seed, to be sown for every acre intended to be planted, and four square yards to every ounce of seed; and now some ground should be prepared to transplant them into, at about six weeks old, at two or three inches apart, where they are to winter, and in May they will be good well rooted plants, fit for field: suppose the field prepared as for turnips, the manure plowed in, if the land be of an open nature, plant with a dibble, in lines three feet apart, every way; one man will thus plant an acre daily.

If it is clay land, by no means dibble plant, the dibble makes the sides of holes so hard, as to retard their early growth; when the ground is ready, and manure spread, set the field out into lands, or ridges, just eighteen feet wide, by sticks at each end; sit in the plow in middle of one land and go two bouts, that is one to set the ridge, and one bout after; there will then be two furrows open: the plowman then goes and sets another ridge, whilst the planter, with hawk, or heavy hoe, with a handle one foot long, places the plants against the furrows, at a yard apart, as near as he can guess, having a boy or girl to drop the plants; he then goes and plants the other two furrows, whilst the plowman goes three bouts more on the first ridge, and so on alternately, and there will be six rows upon each ridge's

furrows, and all at equal distances, if the plowman be dexterous: if the cabbages are wanted for spring feed, then sow in March or April, allowing twelve square yards to every ounce of seed, as the plants are to stand there until planted in June, and July; in planting proceed as above, and there cannot be a doubt as to success;—most failures in these crops are owing to bad plants and bad planting.

Thirty ton an average crop per acre, sixty hath been grown in Pontefract park, Yorkshire.

CALVES. There are many ways of rearing, but the best way is to take the calf away as soon as calved, and not suffer the cow to see it. Wipe it dry, clean its mouth, and put in a tea-spoonful of salt, then take the navel string between the fingers, with back of hand close to the belly, and with scissors cut it off close to the fingers; thus it is left a finger's breadth long, which prevents cold, inflammation, &c. Lay the calf upon a good bed of clean straw, and cover it with straw. Milk the cow dry, and clean as possible, if not you run a great hazard of having a bad milker for the whole noyte or season afterwards; nor let the calf suck at all, as the cow will learn to hold her milk when attempted to be milked; if there be another cow near give the calf a little of her milk; if not, warm a pint of water, and mix it with a pint of the beestings,

and give it the calf, by putting the neck of a bottle into the calf's mouth; in five or six hours milk the cow dry again, and give the calf two quarts of it, not by the bottle, the calf is to be taught to drink thus; hold the milk dish or bowl in left hand, lay the palm of right hand upon the calf's nose, with the fore and middle finger in its mouth press the nose into milk, and the calf will suck. The calf may have three quarts morning and evening, two days; the milk will then be wholesome, and the calf may be allowed a gallon, or as much as it will drink. They should have a lump of chalk tied up to lick at—it prevents scower.

If the calf is to be reared, when it is a month old tie a little of very fine hay tight, and hang it up, so as the calf can reach it, and to save milk substitutes may be introduced, as hay tea, oilcake, bean, wheat, or oatmeal; linseed stewed, &c.

Calves for store stock, reared at usual time of March and April, do not winter so well as those calved in November or December; they should be weaned in April or May by turning out to grass, without water, the grass is moist enough; they should be housed at night for a week, and give them milk, hay tea, or water, good pasture better than meadow; as the calf hath to labour more for its living. The male calves to be castrated at from fourteen to forty days old. (See White Scower.)

To fatten weaned calves with skimmed milk; boil the milk, and make it as thick as cream, with bean, wheat, or oatmeal; add to each mess a spoonful of powdered liquorice and aniseeds, mixed equal quantities, or as a substitute a spoonful of treacle may be added to each mess. Mark well, the meal or flour must be well beat up in a pint or quart of milk, hay-tea, or water warm, and put to the mess whilst boiling, to prevent it from being lumpy.

No.	Length inches.	Girth inches.	Head in lbs.	Pluck lbs.	Blood lbs.	Skin lbs.	Entrails lbs.	Sweetbread.	Necks.	Breasts.	Shoulders.	Legs.	Loin.	Feet.	4 Quarters, S. lbs.	Offal Stones. lbs.	Live Weight. lbs.
1	41	33	12	10	10	28	9 1 1/2	20	14	24	30	22	7	6	14 4 13 1/2	11	9 1/2
2	42	40	8	9	9	14	8 2	20	16	24	30	20	6	6	14 3 8	10	6
3	43	40	16	11 1/2	11 1/2	30	13 2 1/4	28	18	30	34	28	8	6	14 5 12	12	10 1/2
4	45	45	16	12	12	36	12 3	28	20	32	50	30	10	8	10 6 5	14	15
5	52	56	20	14	14	39	14 4	36	26	40	70	38	12	13	27 5	20	7

The calf, No. 4, was calved on 4th of June, and killed on 18th July, viz. forty-four days old: it was a male calf, out of a Herefordshire cow, and had nearly all her milk.

The calf, No. 5, was out of an Alderney cow, got by an Alderney bull; it was killed at nine weeks old; being of a slender growth, and small boned, the fore quarters was heavy; at six weeks old it was forty inches long, and thirty-six round, weighed 140lb, at seven weeks it was 150lb., it

was killed 5th June—none of them was ever suckled.

I have introduced the Yorkshire stone of sixteen pounds, as it is equal to two of the London butchers' stones, also of the Sussex scale of eight pounds, and the mode of measuring is from front of left ear, along side of neck, cross the shoulder and ribs to hip, so far back as to finish in a line with both hips, always minding at beginning that the animal's head is not too high or too low, but level with its back; the girth is to be taken round the breast, close to forelegs, as a horse's saddle girths, and never girth the belly nor loins at flank. (See Weight of Cattle.)

CALORIC, or latent heat, is to be traced in all plants and animals; light or rays of the sun is caloric. Butchers know it by the name of animal life, for if they weigh a sheep or bullock ever so exactly alive, then kill it and weigh blood and every thing else, there will be a deficiency by evaporation; the caloric escapes, and may be detected by glass lactometers. (see Lactometers.)

CALCAREOUS soils are not only chalky soils, but all limestone soils, all marley soils, and in short all between argillaceous and siliceous, which by exposure to sun and air decompose, and falls to fine earths or clays, and clay marle, as scaley stratas of stone quarries, coal scale, slag, lavas, &c.

CANALS. One mile of canal and road for hauling horses, eats up ten acres of land.

CARROTS should never be attempted, but in deep sandy open loam, or peaty marsh loams; five pound of seed, in drills at nine inches apart the twelve inches, for convenience of hoeing. I once had a crop in a sandy gravel, so good, that I measured off one rod, and had them taken up and tops cut off, then 120 filled a bushel up-heaped, weight 47lb., and had eleven bushels, in course, one acre was 36 ton or 1760 bushels. Twenty ton may be called an average crop, and are worth 50 ton of best young English turnips; they should be housed before October, to prevent their cankering by insects. My last crop was sown 24th March, it produced 18 ton per acre, but it was early horn, sent by seedsman instead of long orange carrot; the seed is bearded and hangs together so as to require mixing and well rubbing with dry sand, or it cannot be sown with a drill box. The *doucis carota* requires free open soil, worked to a good tilth, and very rich; yet it abhors farm yard manure, until it be well rotted. The best preparation is to manure well for turnips—to have the turnips eat off by sheep, then bring the land to a proper tilth for the carrot seed, which may be bought at 6s a pound; but best way is to plant old

carrots in March for seed, and when sown let the ground be well rolled.

J. C. Curwen, Esq. recommends mixing the seed with wet sand ten days before sowing, and placed in a warm situation a fortnight, start of weeds is thus gained, when sown as soon as plowed. (See 24th vol. of the Society of A. M. and C. Adelphi.)

CARTS, in all counties, for farm-work, let them vary as much as possible in form, agrees pretty well in their capacity of holding 30 cube feet, or 20 bushel, waterside measure; Dorset dungpot, in bed 5 feet 9 inches by 3 feet 9 inches: Middlesex and Kent, &c. 6 feet long 4 feet wide; the largest in England at 40 miles round London, they hold forty feet.

CARBON is the combustible part of any substance that is reducible by fire, and the most substantial part of vegetation, forming the fibrous and lignous parts, as tow and charcoal. (See Scotch Agricultural Magazine, for 1800, seventh; also fifth vol., page 216; on Vegetation.)

CASEING, (see Flaying.)

CASTRATING of lambs; is done at the age of from a fortnight to three months old, and

should be done between the full and change of the moon, as the lambs are always spotted like measles on the bellies and between the thighs, from the change to full moon, which is called by the South-down shepherds the sign, and they will never cut when the sign or red spots appears. In midland counties and south, they cut when the lambs are about a month or more old, according to the sign, by cutting off the bottom of cod, and drawing out the testicles, one at a time, with their teeth; then takes a little salt and water in their mouth, and squirts it up the cod. In Dorsetshire it is called cutting, and is done when the lambs are from nine to twelve weeks old—they use clams or cutting irons, and sears with hot irons and verdigris, when the operator hath done, here and in Somersetshire, the lambs are turned out with their tails entire, but in south and midland counties, the operator takes the tail in his left hand, with the little finger close to the lamb, there he gripes tight with fingers and thumb, and with right hand twists off the tail, close to his left hand; the operations are generally performed in morning and before night—they are to be walked about for two or three hours.

CAST EWES, are crones or broken mouthed old ewes, dimmants, bad wooled, or bad make, drawn for sale or fattening.

CATCHUP of walnuts—the usual way is to get the green walnuts about midsummer; bruise them in a mortar, and strain off the liquor. But a much better way is to stay until the nuts are ripe, and when the nuts are taken out of the pulp, put the pulp into a heap a few days, then put it into a sack or canvass bag, lay it upon a bench or trestle, and with a lever press it, and the liquor must be received by bowls placed under; a bushel of the pulp will produce three gallons of liquor, with much less trouble than that obtained from green nuts, and better, besides saving the nuts; to every gallon of liquor add one pound anchovies, one pound of shallots, half an ounce of mace, half an ounce of cloves, a quarter of an ounce of whole pepper; let it boil gently, until the anchovies are dissolved, and shallots tender; it must then stand until it be cold, and then bottled, and if well corked and sealed it will keep for ages.

CATTLE weighed, (see Tables of Weight.)

CATTERPILLERS, to destroy, (see Flies on Sheep.)

CATTLE sheds, in straw yards, are as necessary as stables are in any other place. I have seen a yard full of Devonshire steers, in Sussex, on a frosty morning, when set on by a keen wind,

stand with their backs up, and faces wet, by the tears running down; nor would they eat until forced by hunger, nor warmed by the sun's cold, and wet as had for want of cover as hunger: → cattle in fields can shift for themselves, by instinct. **CEMENT**, for joints of cast-iron pipes, as used by Ransom for cast-iron tiles: ten pounds best whiting, two pound red lead, one pound dry white lead, one and a half pint boiled linseed oil; to be well mixed together, and beaten glaziers beat their putty. **Cement** for cistern joints and tessera;—one gallon tar, two gallons of chalk, pounded, and baked dry in an oven, sift it fine, and boil it in the tar three hours, cut it into strips, lay them upon the joints, and run them in with hot iron. **N. B.** the joints must be made dry. For lime cement, see Mariott's Essay on Cements and Artificial Stone, sold by Cadel, Strand, London.

CHALKY SOIL, in some places are so incorrigible, that they cannot be subdued; where they hang upon the sides of steep downs, no grass will stay upon them; such should be sown with seeds mixed of broom, burnet, saint fain, ichicory, and festuca ovina, and as much earth spread on as will cover them.

CHACE is for beasts of the forest.

CHAMPAIN ground is always spelled *champaign*, by the literati, because Johnson hath compared an open country to Champaigny, in France, but the meaning of the word is very different with professional men, on rural affairs, and should be wrote *campain* ground; viz. high, dry, and sound; such is fit for planting, or camp ground. There is a similar schism in the distinction between *mores* and *moors*, which, like a *champaign* country, is low and flat, and to call a *more* a *moor*, is just as absurd as calling a *garrit* an under-ground cellar.

CHAFE, (see *Brush*.)

CHAFF, when cut, of half hay and half straw, will weigh seven pound per Winchester bushel, up-heaped, at three farthings for cutting, or six pence per truss of thirty-six pounds for straw, and sixpence for hay.

Use of *chaff* is to make the horses masticate their corn the better, by mixing it in their mangers.

CHARCOAL, hot from the hearth, a four bushel sack will hold forty-one pound, or four bushels, as it is always sold by strike measure; it soon gains weight by exposure, as do calk, cinders, and lime.

CHEESE; to make : warm the milk to ninety-five degrees, viz. to the warmth of new milk, then put in the rennet, and stir it well up; let it stand nearly two hours, it will be come, or brake, pour off the whey, break the curd, and drain it; first scald it, and then hang it in a cloth to drain; before it is put into the cheese vat, it must be broke very fine, and put into the press to clear the curd of whey, then broke again; lay a cheese cloth over the vat, put on the curd, and work it into the vat, or mould; put into the press, and pressed from eight to fifteen hours, according to size,—thirty-eight cube inches to every pound of cheese.

Cheese is made all the year, but the best is made in summer; the double Gloucester is made in May, June, and July, and the single is made all summer;—their vats, or moulds—

15 inches wide, and 24 deep, holds a cheese of 10 pound

15½ inches ditto and 24 ditto gives 11 pound

16 ditto ditto and 24 ditto gives 12 ditto

16½ ditto ditto and 24 ditto gives 14 ditto

17 ditto ditto and 24 ditto gives 16 ditto

19 ditto ditto and 24 ditto gives 20 ditto

or one bushel, and it will take sixty gallons of new milk, to make a bushel cheese. Mr. Burd, of Burton-Hall, Cheshire, made a cheese, in 1818, that weighed two hundred pounds, for which he refused fourteen pounds sterling.

Rennet is made of the bag, stomach, or maw, of a calf, washed, salted, and dried: take pieces of this, size of a crown piece, put it in a tea-pot, with some salt, and pour in a quarter of a pint boiling water,—this will be rennet enough for ten gallons of milk;—or the whole maw may be made into a strong pickle, with two quarts of water and salt: a spoonful of this brine will do for ten gallons of milk. It requires sixty gallons of two-meal milk to make a cheese of forty pounds.

Anatta, for colouring cheese, is the bixacree-lana, or heart leaved anatta of the shops: it is the pulpy red covering of the seeds of a West India tree, and is an exotic in English hothouses; half an ounce is enough for one hundred gallons of milk, or weight of six pence is sufficient for twenty pounds of cheese; tie the anatta up in a rag, and put it in a tea-cup, fill the cup full of boiling water over night, next morning put the water into the milk, and squeeze and wash the anatta bag in the milk, as long as any colour will come out of the anatta, before the rennet, alias yearning bag, is put in: sage, parsley, spinach, mary-golds, saffron, carrot, or red beet juices, are used the same way. As no parts produce such rich checks as the Cheshire, and other red marble and limestone districts, it is imitated by adding beef suet, rendered and clarified, by skimming as it is rendering, and when cold it is cut as fine as possible, and mixed with the curd.

Stilton cheese is made at Little Dalby, in Leicestershire, upon a strong blue marle, incumbent upon the Barrow-hill limestone: it is very rich, as it is made with new milk, and as much cream as it will bear.

Cream cheese is made in summer, by putting the cream into a dish, half an inch deep, and exposing it to the open air, twelve or fourteen days.

Scottish Agricultural Magazine, vol. second, details the mode of making parmesan cheese; and the same work, vols. fourth and seventh, treats of dunlop cheese, in Ayrshire.

CHILVER, or ewe lamb, in Dorsetshire.

CHURNING, (see Dairy.)

CHICORY, succory, or wild endive, (*scorzonera intybus*) is a aborigine of the chalk districts; it is biennial, and may be sown with any best corn. Doctor Dickson makes it perennial, ten pound of seed per acre;—he says it may be cut twice the following summer, and afterwards four times, for selling horses, or else it gets too coarse. Its produce six or seven ton per acre; at each cutting; it bears pasturing well by sheep, and will produce four hundred weight of seed per acre. I never cultivated the succory, it is no favourite of mine, and I advise my readers to try it upon a small scale at first.

CINQUEFOIL *potentilla verna*, is a degraded legume, also.

CLAY; one cube foot, solid, weighs 2100 ounce, or 135 pound: all decomposed, and pulverised limestone on roads, turns to clay marle, of same colour of the limestone.

CLAY BURNING is excellent husbandry, when it is done discretionally, and not burnt to ashes, but charred like soft bad burnt bricks, makes an excellent calcarious dressing for clay land, when sand and road scrapings are not near.

CLIMATES cannot be ascertained by the degree of latitude, so far as regards vegetation; fine crops of wheat can be grown in the north of Scotland; in fertile vales and sandy loams, near sea level; and although the valleys, at foot of Yorkshire mores, hangs to sun to an angle of ten to fifteen degrees, on account of being elevated ten or twelve hundred feet above sea, it is not one year in seven that a grain of sound wheat can be grown, so that the same rotations obtains here, as in Scotch highlands, oats, potatoes, and turnips.—See my Treatise upon Forest Trees: Scotch Magazine, second vol., page 419, says, barley, in Ross-shire, cut and set up first of August.

It was ascertained by Captain Cook, that

perpetual frost, extended ten degrees farther from the south pole than it did from the north pole; this is owing to the dip of the axis of the earth at south, and elevation of the north, pole;—see the diagram, at fourth page of my Dendrologia,

CLOVER, broad,—*trifolium pratense*; 4,000 seeds in a cube inch; ten pound of seed is generally sown on an acre, but on good land it is too much by half: without trefoil, or ryegrass; white clover should not be sown with red clover, nor red clover with grass seeds:—two load of clover hay for first crop, and one for second cut, is allowed to be good produce. Clover, cowgrass, saintfoin, cinquefoil, lucern, trefoil, and tines, when mown for hay, should never be spread, but managed as buckwheat, barley, and oats, merely by turning the swaths, with rakes or forks, and not make it too dry; free it well of water, and a little sap left in the stems will not hurt, but promote a gentle heat. I never knew an instance of any of the above varieties over-heated in the stack: I have stated above that two load is a fair crop for one acre, but must be good land: I never got more than one good waggon load from calcuttoun, flinty, clayed soil, upon chalk: I once sowed eleven acres, and laid on one hundred and thirty-three large cart loads of manure, for turnips, had a good crop, and barley, sown with clover, in the spring; after barley crop, the

clover seemed so thin and weak, that I let the sheep in, which exposed the surface so, during a hot summer, that no crop after paid for seed and labour, until it had another fallow for turnips: after this, I had twenty-two acres of clover in the same state, but suffered it to stand, and had three loads of clover hay from it, and intended to break it up for wheat, dreading the consequence of its getting sunburnt: but before the horses could be spared, I found the clover improving, and let it stand, and had thirty-three large waggon loads of hay from it.

From a second crop of clover of eleven acres was ten loads of ripe clover, from which I had nine bushels of clover seed, sold at two guineas a bushel.

COAL. One cube foot solid weighs ninety pounds, but a cube foot of loose coals weighs only fifty pounds. Eleven gallons, strike measure, is one bushel up-heap measure, and will weigh eighty-three pounds. Sixty cube feet of loose coals is one chaldron of thirty-six bushels, and will weigh three thousand pounds; by buying five chaldrons at a time, there is thirteen sacks of three bushels each allowed to each chaldron. 8250 divided by 132 is equal to one ton nine hundred.

Yorkshire hard-bed coal weighs 90lb. per foot solid. Newcastle coal 88lb. per foot solid:

Yorkshire soft-bed coal, and Staffordshire coal, weighs only 75lb. per foot solid. Yorkshire stone coal weighs 82lb. per foot solid. Price of coals, black or stone coal, in West-Riding, at coal-pit, is three-pence per hundred weight.

COCKLE, corn rose campion, (*agrostema githago*). is a noxious annual weed, whose seeds offence spoils the samples of wheat and barley; it might be easily extirpated by weeding when the corn is in ear.

COCKCHAFER, or brown beetle: their grubs are frequently plowed up in spring, always lying double, looks like lumps of fat, and lies so thick in some dry situations, that the rooks tears up every blade of grass to get at them; such places are termed rook-rotten, and gets no thanks for their labour any more than moles that works very hard in spring to feast upon them. (See Dorrs.)

COLE is nothing but rape, and when it is a great green crop, it is called cole; and when suffered to seed, is called cole-seed. (See Rape.)

COMMON FIELD, is land lying near towns, villages, and hamlets, belonging to various people, without any division but a baulk, as it is termed, of narrow green sward.

COMMONS are of various sizes, from a few acres to a few thousands, whose boundaries are manorial or parochial.

COMMISSURES are knots in plants; as are the joints in grass, corn, and hemlock, &c.

CONSUMPTION of food. The human species consume upon an average about four pounds and a half of victuals and drink daily, the yearly produce of three acres, thus—half an acre for bread; two and a quarter for animal food; one-eighth for liquors, and one-eighth for greens and potatoes. Horses and cows, of good size, requires five acres, if well kept. (See Middleton's Agricultural Review of Middlesex.)

COLTS, or foals. Particular care should be taken not to put mares and colts where the colt may be injured by stakes in hedges and tops of low pailing. They should be weaned at six months old; where there is a shed and paddock shut them up there, if not, coax them into stable by leading in the dam. Give them bran and good hay, and when you begin to turn them out, do not turn them out fasting.

CUTTING, alias castrating age for, depends upon local circumstances.

COMPOSTS. (See Manures.)

CORDWOOD—a cord is 8 feet long, 4 wide, and 4 high, or 128 cube feet.

COPULATION terms, of a hart or buck goeth to rut, a hare or rabbit goeth to buck, a fox goeth a chicketting, a wolf goeth to match, an otter hunteth after his kind, a dog is said to be salt or goeth to heat, a sheep goeth to blis-som, a horse is proud, a cow a bulking—rideth.

COWGRASS, (*trifolium alpestre*) oval spiked red clover; it is a native of the Yorkshire mores, perennial with solid stems, so that it never swells, hoves or blows cattle as the red clover does, provincially marle grass—12 pound of seed is enough for one acre, when sown by itself, for a crop.

COVENANTS for leases, are local and numerous, many of them governed by the nature of soil, as stony, flinty, wet, &c. Attorneys have got a string of them, which they introduce without the least knowledge of the nature of farm, just as quack doctors prescribe with a similar knowledge of constitutions. The following list will be found useful, as by a judicious selection, covenants may be found that will be suitable for most sorts of farms, and beneficial to

both landlord and tenant. 1st, arrears of rent; 2nd, banking ditches, &c.; 3rd, brambles and bushes to be grubbed, on head, foot and side-lands; 4th, breaking up of meads or pasture restrictions; 5th, bean stubbles to be given up for wheat in last year; 6th, cropping in three last years of lease; 7th, coppices, carting for repairs; 8th, chalking number of acres, and thirty loads per acre; 9th, claying sandy land; 10th, compost manure to be spent on land, and none sold or carried elsewhere; 11th, chalk pit restrictions; 12th, draining; 13th, ditching; 14th, dung manure; 15th, egress, &c.; 16th, fallows in last year; 17th, fences; 18th, fodder; 19th, flints gathered, not to be laid in hedge bottoms, or any other place, but on roads and in gateways; 20th, folding upon the farm and not elsewhere; 21st, furze; 22nd, fruit trees; 23rd, giving up, &c. at end of term; 24th, grubbing bushes, &c.; 25th, gates and gateways to be kept; 26th, game, protection; 27th, glass windows; 28th, gravel pits; 29th, hay not to be sold; 30th, hedges one-tenth of the whole to be cut annually; 31st, housing last year's crop; 32nd, holding over time; 33rd, hedgerow trees; 34th, haulm, chaff, stover, &c. is property of land; 35th, insolvency to be guarded against by bondsmen; 36th, ingress, egress, and regress; 37th, inclosing; 38th, laying down to grass in three last years; 39th, lent-corn in spring of last year, to be seeded;

40th, liberty to shoot, fell, and carry away timber, &c.; 41st, lease not to be sold, or underlet; 42nd, leaded windows; 43rd, limeing; 44th, manures is the property of land; 45th, mines; 46th, meadows to be given up at—in last year of the term; 47th, marlepits; 48th, meadows not to be broke up; mangel worzel not to be seeded in last year; 49th, marleing acres at—loads per acre; 50th, orchards; 51st, plowing restrictions; 52nd, pease stubbles to be left for wheat in last year; 53rd, pollard trees, none to be made on pain; 54th, protection against insolvency; 55th, repairs; 56th, quarries; 57th, restoring peaceable and quiet possession; 58th, residence on the farm and no where else—running lease—suppose first be for seven years, at the expiration of four years, if neither lessor or lessee give notice, it shall be considered as seven years to come certain, and so on four years more, repeating, &c.; 59th, rape not to be seeded in either of the two last years; 60th, roads on farm and gateways to be kept good by stones or flints gathered from meads and other grounds; 61st, rent arrears to be a forfeiture on lease; 62nd, slate on buildings, réparation; 63rd, straw for thatch; 64th, straw, stover, fother, hulls, and chaff, being the property of the farm, is to be consumed thereon and not elsewhere; 65th, sandpits; 66th, sanding of clay land; 67th, stubbles of clovers, tares, pease, beans, and buck wheat,

are to be given up at Michaelmas for wheat, in whole fields, and not in strips or patches; 68th, stubbles of wheat and oats are to be given up at lady-day next, before expiration of lease, to be fallowed for turnips in whole fields also, and farm yard dung; 69th, stems and stools of trees; 70th, stones; 71st, saintfoin not to be seeded in the two last years; 72nd, sporting after game; 73rd, soil, composts, earth, muck or dung, is the property of farm; 74th, seeds to be sown by landlord or tenant, elect in lent-corn, and rolled in by outgoing tenant; 75th, sheep half as many as there are acres in the farm to be kept, would supersede restrictions of general cropping; 76th, sheep and other cattle consuming food, fodder, or stover, on said farm, to be folded or lodged upon said farm, during the consumption, every year, as well by night as by day; 77th, timber and timber trees; 78th, timber for repairs; 79th, tiles and thatch repairs; 80th, taxes; 81st, turnips not to be seeded in either of two last years; 82nd, underwood; 83rd, under letting; 84th, weeds, as thistles, not to be allowed to seed in pastures, wastes, lanes, or hedge bottoms, &c.; nettles and docks in meads and pastures to be destroyed.

As the above are alphabetically and numerically arranged, the landlord or steward may readily draw out such covenants as he wants, and arrange them into a skeleton lease for his

attorney to weave together under his preamble. Take time to compare the pair of leases with the skeleton, for I once placed confidence in a male old woman of an attorney, not an hundred miles from Havant Hants, who pretended much difficulty with the tenant; he at length brought the leases, at a late hour, in breathless haste, for me to sign, having the tenant at the door in a humour to sign. We sat down, he to read the lease, and I to look over the skeleton; the covenants corresponded, and was amply stuffed with 'therefores' and 'alsos'. The tenant was admitted to sign. Soon, very soon, I found business going on contrary to the covenants; on a reference to lease, I found a kind of chorus attached to all the restrictive covenants the tenant did not like, which terminated with, if necessary or if convenient; now, however necessary, the word convenient rendered the lease useless. The tenant was a big, rough, illiterate, and impudent crafty fellow, with a voluble, clamorous, twanging tongue, that through fear thereof the affrighted attorney lent himself. Such rude men, with stentorian lungs, silences every one and satisfies no one; yet they are so stupidly fond of hearing themselves talk, as to flatter themselves unanswerable, when treated with silent contempt.

COWS. There are many varieties, so crossed,

as, to puzzle a good judge to recognize what family they are related to. There are a few districts that hath a particular breed, which are known all over the kingdom.

1st and largest are the Norman breed, called short-horned or Holderness. In East Riding of Yorkshire, on north side of river Humber, they are a marsh breed, with very fine coats, and thin skins, of various colours.

2d in weight are Herefordshire breed, light red, with white faces, and graceful yellow horns.

3d in size are the Sussex reds, horns tipped with black; they are bred in marshes about Eastburn and Hastings.

4th is the North Devon blood, reds, with beautiful sharp yellow horns; they are bred in marshes in the north extremity of county, near Barnstable.

5th in size and most numerous, are the Lancashire long horns, curved downwards and very wide, long in the carcase, coarse hair, and never spotted but mixed red and white, as strawberry; they have very thick skins. This breed extends all over the midland counties.

6th is the Craven breed, mixed colours of white, black, and red, with long small horns, curving downwards and inwards, so as to pass cross their noses sometimes, and it frequently happens that the horns are sawn shorter, to prevent their growing into their jaws; this is a

coarse long-haired breed; as Craven is all upon blue marble limestone, I suspect that governs the horn.

7th. Suffolk duns polled; viz. no horns, fine coats as the short-horned. I know of no other distinct breed that are aborigines of England; the Durham or Teeswater is a cross of the Holderness and some long-horned breed.

8th is Pembrokehire cow, in every respect same as the North Devon, except colour, which is black, coarser limbed.

9th. We have another polled breed from Galway and Scotland, the very counterpart to Suffolk dun, only they are black.

10th. We have a small black breed from Galway, in Ireland, and Argyleshire, in Scotch highlands; so small that when fat is not so heavy as an Essex calf, killed for London veal; the four quarters will weigh from 18 to 24 stone of sixteen pounds. The 5th and 8th sort will eat a cube yard of hay per week, suppose it weighs a pack of 240lb.

GRANE flie, longlegs, or tomtailors, the aurelia or crysalis, is the wireworm or terrestris.

GROTCHEETS, onspellers on deers' horns.

CRBTILES, dang of a hare, or cratleing.

CRONES, old ewes, when drawn out for sale or fattening.

CREAM. (See Milk and Dairy.)

CROP, or rye-grass, alias white-seeds.

CROPS. (See Rotations.)

CROSS CROPPING. What can be termed cross cropping, when the farmer manages so well as to be sure of a good crop, sow what he will, as wheat after wheat, oats after oats, &c. Regular rotations are but fetters to good farmers.

CROPS. A journal of the crops of every field should be kept by the farmer, also how and when manured. (See Rotations.)

CROPS, when good, so as to totally exclude the sun, is better than a bad fallow, or slight manuring; such are clovers, saintfoin, buck-wheat, turnips, rape, pease and beans; hence the utility of green crops to procure good white crops.

CYDER. Five sacks or fifteen up-heaped bushels of apples will make a hogshead of cyder. They should be couched in a heap to sweat, sixteen or twenty days before they are crushed for pressing.

CULTIVATER mister, Lester's seven-share plow or scuffler; it works upon three wheels.

CULMIFEROUS, as wheat, oats, barley, and some grasses.

DAIRY COWS, as to breed, should always be chosen to suit the soil. The Holderness and Somersetshire breed for rich marsh land; Sussex, Devon, and Pembrokehire breed, are for marsh land of second quality; the long-horned breed are best for higher districts; a cross with Holderness and long-horns, would do well for midland counties; the Suffolk duns would cross well with Devon's; the Suffolk breed gives so much milk that they generally get poor—the Devon breed gives so little as generally to look like fatting stock; so it is with the Alderny cows: I once crossed them with a Devon bull, and had the prettiest breed I ever saw in any park; a bull of this cross was a beauty—long round carcase, pye-balled white and red; how they succeeded I cannot say, as I left off business when they were rising three years old. One bull will serve thirty cows. I bought six of the Craven long-horn heifers for my own keeping, to rear a cross by Holderness bull; their time of gestation of each by name:—

1st. Daisy, 41 weeks and 3 days, bull, calf.

2nd. Skipton, 39 do. 3 do. do. do.

3rd. Craven, 40 weeks, and 4. days, cow, calf.
 4th. Craoe, 40 do. 2 do, bull, do.
 5th. Banker, 40 do. 3 do. cow, do.
 6th. China, 40 do. 3 do. bull, do.

In year 1822.

1st. Daisy, 41 weeks and 1 day, bull, calf.
 3rd. Craven, 41 do. 3 days, do. do.
 5th. Banker, 40 do. 2 do. do. do.

In year 1823.

3rd. Craven, 42 weeks and 1 day, bull, calf.
 5th. Banker, 40 do. 5 days, cow, do.

Craven's last calf was, so large that it caused her death.—In the year 1824.

Two gallons of milk is generally allowed to produce 16 ounces of butter, but that depends upon time of year, quality of cows, and state of land; where the annual average is eight quarts of milk to sixteen ounces of butter; seven quarts will do in August and September; and nine quarts will hardly do in July. On good marley, clay, land, well limed, four quarts of milk will produce sixteen ounces of butter, and on poor elevated hill land, the cows are poor, by hard living there. Twelve quarts will be none too much for sixteen ounces of butter. My predecessor never could keep three little Scotch cows all the year round; I have in five years, by liming, made the same land keep five full-grown long and short-horned cows, from which I have had 2251 gallons of milk in one month, at midsummer.

The following I extracted from my journal, never suffering milk or cream consumed at home to be taken from milk set for skimming, but taken in new milk, and set by itself:—

8616 quarts of skimmed milk sold.

1632 quarts of cream churned from said milk.

427 quarts of butter from said cream.

1193 quarts of butter-milk.

83 quarts of loss in churn of milk and caloric.

1038 proof against cream.

This account analyzed gives eight quarts of milk for 16 ounces of butter; five quarts of milk to one of cream; three pints of cream to sixteen ounces of butter; one quart of butter-milk, good measure, to sixteen ounces of butter.

The above may seem to be attended with much trouble:—no journal is kept with less; thus I get a smooth lath, a gallon measure; put a gallon of water into the cream pot, dip the rod in, and at the wet part cut a notch; add another gallon, and put in the rod, to find by the wet where the two gallon notch is to be cut, and so on to top of pot. Thus you have a true gauge. On churning, gauge the cream, and after churning, draw all the butter-milk into cream pot, and gauge it, and the deficiency in measure is the bulk of butter, allowing 2 per cent. for waste and caloric. Our butter pound here is twenty

ounces. I had a pound put into a quart measure, and it took exactly one pint of water to fill it up, which proved that a quart beer measure was two pounds, or two pound and a half of sixteen ounces; thus by a little attention, mere amusement, may be ascertained how many pounds of cheese and butter may be got from an acre of land annually, (see Cheese,) it will be from one hundred to two hundred, according to land. On the day of a cow's amour, her milk should not be mixed with any other, nor the cream, as it will sometimes retard the coming of butter in the churn.

New milk should be cooled, by placing the milk cans in cold water, in summer, and stand a sufficient time to cool, in winter, before it is ciled, alias strained.

Butter sixteen ounces for12d.

Eight quarts of skim milk at one halfpenny...4d.

10d.

Eight quarts of new milk at 2d.16d.

Let the young whies, sturks, or heifers, have the bull on her first amours, they do better than those which are put off from time to time, and will be at their prime at five years old; they that hath been put off will be a year later, besides a year's keep at least lost.

DARNEL, ray-grass or crap, (*Lolium tenue*)

with branched panicles, it is a grievous pest on sandy land, near Brighton. I have seen it in rye, so much, that to get rye clean for seed, women were employed to draw the rye and cut off the ears, a handful at a time; when it is to be ground, they don't mind the darnel, as it is nearly as good as rye. I took a sample of the mixed from a sack in Earl of Chichester's barn, at Stanmer, Sussex. On my arrival at home, I found the sample weighed fifty-seven pound a bushel, by my condrometer; a cube inch of mixed seed contained 580 grains; the proportion of rye was 15 to 14 of darnel, and rye had 480 grains per inch.

DEER. To keep up a herd of four hundred, and kill at seven year's old, there ought to be saved annually forty-three male fawns and twenty females; there will be then a surplus for casualties of six annually. There is on an average four male fawns found to three females. The laying old does dry for fattening, requires a great deal of attention to take their fawns; without this attention some of the old does will be sucklers at Christmas, instead of being fat; there will be twenty male fawns and fifteen females to be killed annually.

Rutting season commences 10th October, and last three weeks. There will be a few fawns got ten days longer, but not many.

Gestation, or time of carrying, is eight months. I never knew 11th June pass without fawns. And they are—

1st. fawns one year without horns.

2nd. prickets; two small upright spikes or horns, from two to eight inches long, according to earliness of fawning.

3rd. sorel, horns 13 inches long, 2 wide, 12 to eight pounds.

4th. sore, horns 14 inches long, 2½ wide, 21 to eight pounds.

5th. buck of first head, 15½ inches long, 13 wide, 12 to eight pounds, bare buck.

6th. buck of second head, 18 inches long, 4 wide, 9 to eight pounds.

7th. buck of third head, 19 inches long, 5 wide, 6 to eight pounds.

8th. buck of fourth head, 21 inches long, 5 wide, 4 to eight pounds, viz. 2lb. each.

9th. buck of fifth head, 23 inches long, 5½ wide, five year old buck do.

10th. buck of sixth head, 24 inches long, 6 wide—no increase.

After deer gets to be eight years old, their horns gets less palmated and more forked. Horns, in 1807, worth 9d. a pound.

Attire, or graces of deer, or bucks' horns, bar, brow antler, beam, back antler, the advancer, palm and spellers. If the crotchets or spellers grows in form of a man's head, it is called a

palmed head. Heads, bearing not more than three or four, and all on left, it is called a crowned head. Heads, having double crotchets, are called forked heads. If you are asked what a stag bears, you are only to reckon the crotchets he bears, and never to reckon odd ones, as if he hath four crotchets on his near horn and five on his far, you must say he bears ten, a false right, for all that the beam bears is called rightal. If but four on the near horn, and six on the far horn, you must say he bears twelve, a double false right on the near horn, for you must not only make the number even, but also the horns with that distinction.

Attire of a stag; next to head is the bur, the pearles, bur or brow antler, beam, royal antler, sur royal antlers, and all at top of horn, crotchets, etc; and the streaks in the beam and palm are called gutters or glitters.

DUNG. (See Ordure.)

DISARMED, is when the horns are mewed or fallen off, which is annually in May. Disarming, when hunters are sawing off the horns.

DEER hath eight teeth in front of lower jaw, and like sheep, none in the upper. Common fallow deer are known by their broad palmed horns. Rein deer are much like the stag, but

much thicker and larger, with white horns; they are natives of Lapland. Roebuck is smallest of all deer with upright horns, but not forked. Hart, is a stag or male red deer of six years old; thus, as the fallow deer above, at one year old, no horns; two year old, horns straight and no branches, first head; third year is second head; horns six or eight branches; fourth year, third head; with eight or ten branches; fifth year, or fourth head, ten or twelve branches, stag; sixth year, or fifth head, fourteen or sixteen branches, hart; seventh year full headed; first year is a calf; second year a knobber; third year, male, is a brock; female is a hind; fourth a staggard; fifth a stag, and sixth a hart, with horns, as bur, pearles, beam, brow antlier, back antlier, advancer, palm, and either forked or crown spellers; if forked, there is no palm.

Roebuck, as above, is small, with cylindrical horns erect. First year a hind, second a gyrl, third a henuse, at fourth, a roebuck of first head; fifth, a fair roebuck. They are aborigines of Germany. All these varieties may be seen in Duke of Norfolk's park, at Arundel, Sussex. Moose deer are like our red deer in horn, but so much larger, weighing twenty-four pound a pair, and six feet long. There are black and grey moose deer, ten feet high at the shoulder—they are natives of India.

Fallow, (or pale red, and pale yellow) deer,

are our common park deer; some are white, some tanned, some black, and some black with bald faces. Fawsley park, in Northamptonshire, produces as heavy deer as any park in England, and there is the bald faces. Stanstead park produces as small deer as any park, and finest-flavoured venison, feeding much upon wild thyme. Stanstead park herbage is fine, and abounds with wild thyme, being near the substrata of chalk. Forest deer, and those on deep land, will measure 4 feet, 2 or 3 inches long, and 3 feet 6 inches girt, at 7 year old, and will weigh 9 to 10 stone—skin, 9 or 10lb.

Corn-fed bucks, 1807, sixteen guineas a brace, and grass-fed bucks at thirteen guineas. For grass-fed, the value to breeder, in joints, as under, on right hand:—

	£.	s.	d.		£.	s.	d.
2 haunches,	5	5	0	and grass-fed 2 haunches,	3	15	0
2 necks,	2	2	0		2	0	0
2 shoulders drawn,	0	13	0		0	12	0
2 breasts,							
	0	8	0		0	6	0
corn-fed	£8	8	0	each buck,	£6	13	0

Skins, ten shillings and sixpence each. Buck venison in season from July to 10th October. Doe venison all winter, and haviør venison is always in season. Does and doe skins always half price of bucks, (deer skins dried); 20 buck

skins, at 7lb. each—140lbs.; and when dressed weighed forty-one pound; cost 9s. each for carriage and dressing. Thirty-one doe skins, at three and a half pound—93lb., do. dressed, weighed twenty-six pound, and cost 8s. each dressing.

This proves that growing venison is a losing concern, as the buck and its skin, at seven years old, is worth only seven guineas, and doe three and a half. There is no return in seven years, as of wool and lambs. The horns and fawns are not worth one pound in seven years, and if killed younger, the price is in proportion, as under:—

Seven-year old buck.

Length 3ft. 9in. Girt 3ft. 3in., and 3ft. high at the shoulder.

2 haunches,	46lb.
2 sides,	48
Chine,	14
Head,	8
Skin,	8
Blood,	8
Pluck,	8
Horns,	5
Entrails,	35

Total. 180lbs.

Put on haunches two inches thick.

▲ Six-year-old buck.

2 haunches,	40lb.
2 sides,	43
Chine,	14
Head,	8
Skin,	6
Pluck,	8
Blood,	8
Horns,	4
Entrails,	35
Total.	166lbs.

Fat on haunches $1\frac{1}{2}$ inch thick.

A five-year old, or buck of first head, called bare buck.

2 haunches,	36lb.
2 sides,	38
Chine and head,	21
Skin,	4
Pluck,	6
Blood,	6
Entrails,	28
Total.	140lbs.

Fat $1\frac{1}{2}$ inch thick.

Best doe.—2 haunches,	28lb.
2 sides,	26
Chine,	6

Total. 60lbs.
Head 4½ pounds.—Fat on haunch 1 inch.

A sore.—2 haunches,	....	....	30lb.
2 sides,	....	....	28
Chine and head,	....	....	18
Skin,	....	....	24
Pluck,	....	....	6
Blood,	....	....	6
Entrails,	....	....	27½
Total.	....	....	119½lbs.

Sorel.—2 haunches,	....	....	22lb.
2 sides,	....	....	20
Head and chine,	....	....	12
Skin,	....	....	2
Blood 5½—Pluck 5½,	....	....	11
Entrails,	....	....	24½
Total.	....	....	91½lbs.

Pricket, 2 year old.	....	....	....
2 haunches,	....	....	18lb.
2 sides,	....	....	16
Head and chine,	....	....	9
Skin,	....	....	14
Pluck,	....	....	4
Blood,	....	....	4
Entrails,	....	....	20
Total.	....	....	71½lbs.

The three last are most delicate eating with

currant jelly. Some park keepers, to distinguish their ages, names males, and females of first year, fawns; second, prickets and tegs; third, sorels and thaves; fourth, nores and does, after this, bucks of first, second, &c., heads and does of one or two year, &c.

DECOMPOSITION, or Fermentation, is of five orders. First, fermentation of dough or sponge for bread; second, fermentation of fruit or must for wine, vineous; third, fermentation of wort for beer; fourth, produces vinegar or acetous acid; fifth, fermentation is putrid or effete, stinking, and is what butler's term sickening of beer; and if either beer or wine is not strong enough to stand this second fermentation, it dies, or become vinegar, for want of this spirit. All vegetable and animal substances rot in fermenting, except there is a spirit in them, and then they are as hay stacks, cotton cloth, dresser's waste, and stable yard litter; where horses eat much corn, this happens for want of moisture to rot them, and is well understood by farmers, that they either turn it in the yard, or cart it to a heap near where it is to be used.

DIBBLEING, or planting seeds, with a dibble, setting stick, by a line. Beans are worth from four pence to sixpence a gallon, according to size. (See Beans.)

DILLS, or winter tares. Sow two bushels per acre, in September or October.

DIMMONTS, or ewe-hogs.

DORRS, humming clock. (See Cockchafer.)

DOCTERING cattle; the less of this the better. The owner is the best judge of the cause of illness; and if he cannot cure, and there is no veterinary surgeon near, consult the apothecary, but never trust to quacks, glooms, or valcans.

DRAG. (See Brush.)

DRAY, a squirrel's nest.

DRAG-harrows, are heavy harrows for rough fallows.

DRAG, a tool to draw muck out of casts, in setting on the heaps in fields.

DRONE flies, breeds in nightsoil, privies, kennels, &c. and are always colour of a swart sandy beard; and in the crysalis state they are maggots, with long tails—lime is best to destroy them in this state.

DOUBLETH: when a hare winds about to evade the hounds, the doubleth, &c. &c. ;

DRAINING, in strong retentive stable land, is always done, in Hertfordshire, the year the fallow is followed; the drains are set out in a diagonal direction to the ridge and furrow, at five yards and half distance, to empty themselves into the fence ditches; a strong furrow is plowed for each drain, and cleaned out a little deeper with spade, then with a draining spade, whose bit is eighteen inches long, four inches wide, and tapers to two at point, with wide socket, and strong straps to admit of a stout handle that tapers upwards, and is four feet long; on this is a strong ring, slid down to the spade, with a stout stump four inches long; this stump stands in front of spade, and serves as a tread to the operator. The drains being opened, the hedges are cut, and the spray wood carted between the drains, the drains are cleaned out with a crane necked hollow, or spout like shaped hoe, with long handle; the wood is put in and trod so as to fill up fifteen inches, then three inches of straw or stubble is put on to keep out the earth; this was done at two pence a rod in year, 1760! (See Head and Foot Lands, alias Hedge greens, under letter H.)

DRAINING, in meads and pastures. The

turf is taken up four inches thick, exactly width of garden spade, then with same spade they sink eight inches more, then twelve more with draining spade; clean out and place the turf with green side downwards upon the two, two inch shoulders that was left by the draining spade, they then fill in and put all the earth upon the drain, at three-pence a rod, and if thirty inches deep the price was four-pence half-penny per rod, of sixteen feet and a half.

I have seen much of Mr. Hart's draining, in Northamptonshire, particularly at Fawley, where much money was spent in making deep stone drains, and the ground was in two years as peckey as ever. Surface draining, with common plow, every autumn, would have cured these pastures. I had seventy acres of common, on a declivity; the summit was sandy, substrata strong loam, argil, and clay marle. Twenty acres of the lower part was swampy, producing little besides rushes, aires, and carexes. I proposed the making of it into a sheep-walk; the bailiff opposed me, and alleged the danger of rotting of sheep, as Racton common was full of the rot plant, (*ranunculus aquatilis*), so called, because generally found on land that is not sound enough for sheep. The first frost that came strong enough to form ice, I took an assistant, and had a turf turned up, where there was ice close to foot of dry ground, and then pits sunk to see how deep the water

was in the ground; I found by this that all the water came out of the higher ground. I then set out lines in various directions, so as to have a fall of one foot in fifty, to prevent water washing the trenches; or surface drains, which all terminated at one point, where I had a pond made for cattle; and by having the trenches cut with so gentle a fall, so far from being injured by the run of water, they wanted opening every two or three years with a spade, when nearly grown full. Thus I laid all the low part dry at three or four pound expence, that could not have been underground-drained for thirty or forty. I have within this last five years dried two bogs and one swamp in my own ground, in the simple mode of open drains. I was told, in year 1820, that my meadow wanted one hundred and twenty pound laying out in draining. I cut off the water at head, by two underground drains; and made surface drains all over the mead, at about twenty yards apart. The mead is perfectly dry now, December, 1825, and the whole expence do not exceed five pounds. The open drains are little bigger than the cut of a loaded cart wheel mark, with as gentle a fall as possible; and only cut just through the turf; for if cut deep, and a rapid fall, the water of heavy showers and melting snows will soon wash them into gullies. In underground draining, where much water is collected, if there is too much fall, the weight of

water will choke up the drain, by tearing up the bed on bottom; one foot fall in five hundred is sufficient; more is dangerous, where there is much water.

Precepts, are by some sorts of readers looked upon as mere theory, if they do not coincide exactly with the common practice of such readers, and examples are of no use to they that cannot read, as our Saviour said, St. Mark, 9. 48. and 18. 41., 'have ye eyes, and see not; ears, and hear not'; this was an appeal to the mental faculties; such was the result of the above common—I let it to a tenant, with the home farm at Sturstead, Sussex; the said common was become a perfect sound sheep walk, but the new tenant could not read the little zigzag curvilinear characters formed by these open drains, but collected all the water into one channel, direct down to the pond, which was soon filled with wreck, and the lay ground again swamped—this was a sporting farmer.

My own mead, as above described, laid perfectly dry, by surface drains, which serves as water carriers at pleasure, to flood the whole, and a water meadow, of what is termed by irrigators catch work, or catch water. I let my farm last lady day to the man I employed to drain, and for all that he cannot read his own way, as chains nor dunnies, but throws the whole of the water off at one place at a time on to the land, and you

off to it happens; this they call swilling, provincially: now when one discovers such mental blindness, the surprise subsides, when one meets with books, whose authors so directly contradict each other; particularly when one hath been waded by a punctilious man and the other by a careless book-maker.

We have a professional drainer, George Parkinson, from Bolton, near Gilsburn, Yorkshire, in this neighbourhood; he drains thirty inches deep, covers with turf, and fills in, at five pence a rod of seven yards; his tools are same sort as are used, in Hertfordshire, wanting the broad set spade; now where stone is cheap, if the ground was opened a foot wide, instead of seven or eight inches, before the draining spade is used, and drains covered with stone instead of turf, the drains would be much more permanent, and but little additional expense.

Good inclosures is the first object; but good draining and good tillage is the soul of farming; yet it is possible in hilly and mountainous districts, to lay good land too dry: the Hertfordshire mode of draining is merely to let off the surface water in strong retentive soils, that are too short to drain themselves, and generally of other districts that are subject to land springs; but in rock springs, stony, sandy, gravelly, and marshy districts, it would be as absurd to give plants, or estimates, as laying down rules for landscape gardeners.

The expense will vary from twenty-pence a rod to twenty shillings: arable land cannot be laid too dry, but to lay meads and pastures of strong marle, or weak peat, in these elevated situations perfectly dry, injures them more than the water. I had a piece of wet, marshy ground, at Oldfield, which I laid dry by open drains; my neighbours amused themselves with the novelty, and said I was ditching where I ought to drain: four years is now past, and it hath not cost a farthing besides limeing with the rest of field, and is at this time of more value than three times the breadth in drier part of same field, and my neighbours are silenced.

DRILL HUSBANDRY: the land under this system, where practicable, hath two advantages over land that is too strong, or too stony for drilling; first, is the kindness of the land; secondly, it gets better tilled. I regret that drilling is not persevered in more; it would then be better understood, where it is not in general practise. To obtain this, wheelwrights might be instructed to construct a drill machine; on the simplest and most approved principle; and a person with a horse to go out and sow at per acre, as was done at Chichester, in Sussex, with portable threshing machines. Mr. Parry's Derbyshire Agricultural Survey, says drilling by the acre hath been done there.

I once saw a field of drilled wheat, between Rickmanworth and Beaconsfield, in Buckinghamshire, the drills had nine inch intervals, and men were flat hoeing with six inch hoes; it struck me as the neatest specimen of agriculture I ever saw, and bids fair for the total extirpation of poppy, charlock, and other annual weeds, by thus hoeing, and in two or three days handweed, for wheat, oats, barley, and rye. I am decidedly of opinion that nine inch intervals is the best distance; also for lucern and saintfoin, which might then be kept clean.

DUNGHILLS. (See Manure.)

DUCKS, six or seven to one mallard or female. A duck sits thirty days.

EARTH and mould are of various denominations; peaty when rotted, is vegetable earth; so is heath land; but is always accompanied with sand, brick, earth, or loam; is a mean between clay and vegetable mould. A solid cube foot will weigh 123lb.

FLAX, dry, a cube foot will weigh thirty-seven pounds; it is a quick grower, and very useful to winter for cartlinings, weather boards, &c. and of all trees it is the least pernicious to grass. I measured one of the narrow leaved

English elm, that was felled 1818; its stem was forty-six feet long, and straight; circumference in middle, ten feet four inches; contents, 315 feet—a foot of green timber, round measure, ninety pound.

EDISH, is the winter feed of meadows, after the cows hath eat the best off—aftergrass or fog-

ELLS, runs well in dark stormy nights in September; on 28th, caught 120 in river From, Dorset, weight 90lb. One was thirty inches long, six round, weight two pound, good weight.

EARSH, any stubble field plowed for another crop, as wheat earsh, oat earsh, and what are generally termed stubble turnips are properly wheat, oat, or clover earsh turnips.

EBGQUE, the horny lump behind and below the pastern joints of horses.

ESSAY, or breast of venison.

EVAPORATION. Doctor Waite says from two to three thousand gallons of water is evaporated from an acre of land in twelve hours, on a hot summer day; when we see it at a distance we call it gossamer or summer goist. Too much or too little evaporation depends entirely upon

the nature of soil as to its being sand, marl, or clay. On this evaporation plants of all kinds

EXPEDITE; to cut off the dew-claws of a dog, or front claw, to preserve the game.

EXTRAPATOR, cultivator, and scuffer, the one and the same thing, whether used in fallow or gathering up stubbles, and weeds after harvest to be drawn home for soiling the strawyard.

FALMERS, or dung, a large flume of polecats, rats, and other vermin, including badgers and hedgehogs.

FALLOW, Ground intended to be fallowed, should always be broke up in the autumn. Then some time in winter, or early as possible in spring, break it, that is, plow it right across, and break it down with one or drag harrowed. As soon as annual weeds are green, latter end April, plow as deep as the plow will go, diagonally from e to d, or e to a, (see Frontispiece); drag, harrow, scuffle, and roll, if necessary, with plain or spiked roller, to crush the clods; harrow or scuffle, and gather up the roots; and as soon as annual weeds are green, plow again diagonally right across last plowing, as is shown by the lines—c to d, or d to b in the Frontispiece; plow

deep as before, and these two plowings not only level all the under-furrow baulks, but cut or roots up all the deep-rooted weeds, as thistles, bladder, campion, &c. Now drag, roll and harrow, and most of the roots will be visible for gathering; after that, let it lie until another crop of seed weeds hath vegetated, then set on the farm yard dung, and plow it in, lay it into ridge and furrow, now called stretching, as a. d. c. in Frontispiece. The ridges should be gathered narrow, from two to four bouts. I suppose this the last operation before harvest work begins, and by the time harvest is over fairly, there will be another braird of annual weeds on fallow; now the seed furrow must be given by cleaving the ridges, that is, setting the ridges in the furrows, and leaving furrows where the ridges were before; thus the manure will be intimately mixed, and work well, but if the manure is compost now is the time to lay it on, prior to the sixth plowing or seed furrow. The ridges cannot be too narrow, or furrows too shallow, for the water to go off quietly; and all meads must be resorted to by plow and spade, in every part where water is liable to lie in winter. It is not high ramping ridges, and deep furrows, that will effect this. I have seen this tried offence; the result was a little wheat on the centre of ridges, laid too dry; but sides or edges of ridges and furrows nearly naked, at least one acre out of three lost.

Such a fallow as this will last twelve or fifteen years. Thus, suppose the mode of cropping, to be four or five course shift; then three rounds brings us to fallowing, hedge cutting, and draining again; as the brushwood drains will not last above fifteen years, (see Draining.) Be careful to plow at all seasons, when dry enough, but never in wet. A good fallow for deep heavy land requires twelve months. A summer fallow is but half a fallow for such land, and strong barley and turnip land would be better broke up for fallow in autumn, into ribs, stitches, or narrow ridges. The winter frosts ameliorates the land, destroys slugs and insects, weakens and loosens the roots of weeds; in such land these demi fallows do very well for turnips, and after turnips are eat off in autumn, two or three plowings called a bastard fallow, does very well for wheat; provided the cultivator, spike roller, and harrows, are liberally applied, and root weeds carefully hand picked. Water furrows, by plow and spade, must be attended to during winter, as sedulously to fallows as wheat lay, were it possible to keep strong land clean without fallowing; yet the truly experienced farmer would fallow for the sake of pulverising the ground, and benefit of frosts, sun, and air.

FARE, farrow, or litter of pigs.

FARCY, in the blood of horses, is known by knots, or swellings in the veins, as if pease had got in.

FARMING. To farm well, there ought to be a pocket map of the farm, with name of every field, and a journal kept of crops, manuring, fallowing, draining, and fencing, as hedging, ditching, &c. of each field, by name and date.

FARMERS. Who are farmers? I have begged the question, and will answer it:—They are truly farmers that crops and manures according to soil, fences, drains, and fallows well, and procures auxiliaries to encourage evaporation in some land, and check it in others; such a man, I say, is a farmer, even if he wears an apron; he will carry clay marles on to sand, gravel, or chalk land, to check evaporation. Clay and clayed tills, that are baked to a crust in dry weather, so as to suppress evaporation, he will open by manure, chalk, sand, road-scrappings, effete, lime, &c.; thus he keeps his fiddle in tune:—such a man would be able to read the surface drains, (see Draining,) where two professed farmers could not, nor would he plant beans in chalk, as I saw in Hertfordshire, a whole field between Cheneys and Latimers, in the dry summer of 1818; by the time the beans were in bloom, evaporation had ceased, the moisture was exhausted, and not one

bean, pod was produced : I saw the straw standing at harvest-time without a bean or a leaf.

BARN-YARDS, should always be set out so as to run from stables and cow-houses, ox-ranges also, will run into it ; it should be lowest in middle, with a well-paved or pitched cart road at front of barns and other buildings, raised so as to exclude all water, except rain, and if eaven droppings were carried off it would be all the better for manure, as well as stock at straw-cribs, in the open yard.

FAT of Deer is called snet, or suet, yet you may say "this was a high deer of grease." The fat of a boar is called grease ; the fat of a roe only is called heavy grease.

FATTING CATTLE will increase by means one fourth of its weight in fourteen weeks : they pay, perhaps, twelve per cent more for stall feeding, than if allowed the range of yard or pasture, and the manure saved will pay for extra attendance. I had six Scotch bullocks tied up, in 1818, they eat twenty-four boxes of turnips daily, weight forty-six pound, or one hundred and eighty-four pound each, (see Turnips,) at same time, a large bull, of the Suffolk polled breed, eat daily, two hundred and thirty pound ; his length was eight and a half feet, girt round

the breast, seven feet one inch; (poor, in course) the black Scots was five feet six long, and same in girt, and when half fat, was five feet seven long, and six feet girt.

The Farmer's Calendar, printed by Symonds, 1802, says a middle sized ox will eat, in twenty-four hours, one hundred and eighty pound of cabbages; a year old calf, seventy pound; a sheep, fifteen pound; and that thirty-six acres, in five months, made completely fat the following stock:—

14 Bullocks,	20 weeks,	at 4 shillings each	£ 56
25 Milch Cows	ditto	ditto	100
12 Calves	ditto at 2	ditto	24
8 Bulls	ditto at 4	ditto	32
400 Deer	ditto at sixpence	ditto	200

£412

Gives £11 3s. 4d. per acre.

Good hay, from limestone land, will make cattle fat. Some forces with grains, oatmeal, bean meal, rye, rape seed or lintseed, stewed to a jelly; oilcake, potatoes, carrots and parsnips; for winter feeding; and the sheds should be warm, yet so ventilated, as not to annoy one another, or the feeder, by their breath, either as steam or smell.

FENCE, or fawning month, commences 9th June, and ends 9th July, wherein it is unlawful to hunt.

FENCES. Sixteen rod of land requires sixteen rod of fence; a square acre fifty rod; five acres one hundred and thirteen rod, and ten acres requires 160 rod of fence. (For making fences see my Treatise on Forest Trees.)

FERMENTATION of must or bruised grapes, wort, &c. is excited at a temperature of seventy degrees: in fruits less sweet than grapes, if sugar is not added, the vineous fermentation produces the acetous, and instead of wine you get vinegar. (See Decomposition.)

FIORIN grass. Richard Preston says it produces thirty ton per acre—Farmer's Journal, 16th December, 1816. (See Agrostis.)

FIR. Scotch fir. Fresh cut poles, one foot, will weigh ninety pound, and the same pole kept dry two years, will weigh only twenty-eight pound, consequently of little strength or durability, and is worth no more than fire-wood price—sixpence a foot; nor should they be used but for loose temporary fencing, until they are large enough to quarter for spars or rafters. All the fir tribe are as bad, the larch excepted.

FLAX or lint, (*linum resitatisimum*.) From this plant, is manufactured our fine hollands and Irish linens. From the seed of this plant is

drawn the linseed oil, used by painters. One bushel of seed is sufficient to sow one acre; time of sowing, middle of March to middle of April; and as soon as weeds are high enough, begin weeding, and repeat the weedings as long as possible, without injuring the crop. When sown too thick on rich oil land, it is apt to lodge, and to prevent the lint being injured, it should be turned back with long poles or pitchfork handles, to keep it from the ground, or pulled. I have seen it on the sandy marles in Herefordshire, standing, and as high as the women's apron strings that were pulling it.

It should be pulled just as it hath done blossoming, and the handfuls laid across each other, to save the rippers trouble of separating. The rippers rip of the reed by drawing the tops through an iron comb, then ties up the lint straw into sheaves, not tight bound to let the water into bond; it is then put into flax pit or pond, to rett, and will require from ten to twenty days, according to weather, bringing on fermentation that decomposes the epidermis or skin and interior pectinaceous substance, so as to let loose the liny fibre. Never steep or rett twice in the same water; if you are obliged to steep in running water, it will take from twenty to thirty-five days to rett; care must be taken to keep it under water by poles and stones all the time, and when taken out it is carted to grass field,

untied, and spread to rats by the weather, called grassing; fifteen or twenty days, frequently moved to prevent its texture or colour being injured. After retting, it is tied black as shaven, for retting and kiln dried; it is then ready for milking, beating, swinging, scutching, and hackling; the above is the tall, or white, or male flax, that is pulled before it seeds; in course the rippling comb was not wanted; there is no other difference between male flax and female, or brown flax, than what is caused by the ground; for when the tall good flax hath bloomed, it is pulled, and the short is allowed to stand three weeks longer to ripen its seed, and is then treated as above. The seeded flax is not so good as the male, but the value of seed helps to make up the loss. Eight or ten bushels of seed from an acre, worth from six to twelve shillings per bushel, according to markets, which are governed by importations. A good crop of flax is worth from ten to twelve pound, in the field, or five pound a ton.

A bushel of seed weighs from fifty to sixty pound; a cubic inch of seed contains from eighteen hundred to two thousand seeds; two bushels is generally sown on an acre, which is too much by half; and is the cause of its lodging or being laid, by reason of its standing so crowded. It is too weak, as not being able to stand.

Two and a quarter ton is a good crop, and will yield forty-five stone, worth nine shillings a stone, of fourteen pounds; of scutched flax, forty-five stone is six hundred and thirty pound, and when hackled will stand thus:

135	pound best flax at 12 pence	£8	15	0
255	ditto second ditto at 10 ditto	19	12	6
60	ditto short ditto at 8 ditto	2	0	0
45	ditto clearings do. at 6 ditto	1	2	6
90	ditto hards ditto at 3 ditto	1	2	6
45	ditto waste ditto at 0 ditto	0	0	0
<hr/>		<hr/>		
690	pound	£28	12	6

Some farmers harvest their flax exactly as if it was wheat for stack, or mow, others cut off the tops in field, and steams instead of steeping, by which they get one third more flax.

FLAYING, striping, and casing all manner of chace. The hart, and all deer, are slain, and the huntsman will say, "take off that deer skin." The hare is striped, or cased, and so is the boar too: all manner of vermin, as fox, badger, and martin-cat, are cased; by begining at nose, and turning the skin over its head and shoulders.

FLIES, sheep; gray flie (O Ovis) breeds in the frontal sinus of sheep: to prevent their breeding maggots by their blowings, get your

druggist to mix one pound of arsenic, one pound dry white lead; and one pound sulphur vivum, get a small pepper box filled with this powder, and open a seam, by shedding the wool from the sheep's poll to its tail, (then dridge in a little powder, and rub the wool into its place with a short stick, as the powder is disagreeable to handle,) and that is the part the sheep cannot defend.

FLIE, spotted butterfly; moth that breeds gooseberry caterpillar: Scotch Agricultural Magazine says, are destroyed by putting powdered sulphur vivum into a pepper box, and on a dry day wet the trees and dridge on the powder, it must be dry weather, or the rains will wash off the powder.

FLIE, bot. (*O haemorrhoidalis*) deposits its eggs in the rectum of horses.

FLIE, gad, brie, (*Oestrus bovis asilus tabanus*) they blow, or deposit their eggs in the skin of cows, and are called warvel worms, and are there nourished all winter, and when full grown they crawl out and falls to the ground, and pass the chrysalis state under the first stone they meet with; the larvae may be destroyed by washing the bullock's back with a decoction of white Hellebore, or any bitter herb, as wormwood, horehound, &c.

FLOGISTON, caloric, elementary fire, is supposed to enter all bodies,—animal, vegetable, and mineral, but is as untangible as dark, or sunshine.

FLINT: one cube foot solid will weigh one hundred and sixty one pound; and one cube foot of road, or building flints will weigh eighty pounds, loose.

FLOOR stone joints to be made dry, (see Cement.)

FLOUR, wheat. Six bushels of wheat, weight sixty-two pound a bushel, will make a bag or sack of flour, weight 280lb., viz. five bushels or twenty pecks of fourteen pound a peck, so that good wheat is to flour as four is to three, that is one fourth goes to bran, loss in mill, &c. nearly as follows:—

	lb. p.
One bushel wheat, weight sixty pound,	
loss in grinding,.....	0,75
Do. in dressing,.....	0,25
Fine pollard,.....	2,00
Bran,	10,50
Fine flour,.....	46,50
Proof,.....	lb. 66,00
When two sorts of flour are made, called first	

flour or fine; second, or household flour, there will be 24lb. of superfine, and 22½ of household. If the miller be honest, price of household flour is always five shillings a bag less than fine, if dressed in a bolting machine, whose first bolter hath fifty-eight wires in one inch; second, fifty; third, thirty-eight; this is for muffin meal or fine pollard; fourth, sixteen wires for fine bran, and coarse bran, alias clatts, works out at lower end. (See Wheat.)

FLUKES, herrendines, leeches, are found on hills, in water, and in the livers of unsound sheep.

FOALS, comes in March or April; in course the dam is proud; and takes the horse in April or May, as the time of gestation is eleven months to fifty weeks. The colt should be weaned in August or September; they should have good fine hay, with mashes of oats, bran, pollard, and boiled carrots; bathe the mare's udder with cold water, and milk her; then let the colt suck. Best time to castrate is at three months old; some prefers six, others twelve months, and others two years. (See Colts.)

FOG, alias aftergrass.

FOILING. (See Footing.)

FOLDING sheep, in summer and autumn for wheat, and in winter and spring for barley. Thirty square yards is about the room allowed by shepherds, in pitching the fold, for every score of sheep. Hay is given them, in cubs, in the winter, at going in at nights, and again in morning, before being let out; this is the general practice in Sussex, Hampshire and Dorset; they allow these dung carriers to earn four shillings and sixpence per head, per annum, by thus manuring, at about forty shillings an acre; and I allow that if they were folded upon grass pastures only, they would be five shillings per head per annum better. Lord Sheffield had a fold with sheds and hay racks in them for wintering, or summer soiling his flock, the yard well littered by which he obtained a good quantity of first-rate manure, and keeps his sheep clean, dry, and healthy, by allowing them to run in park, when fine, at Sheffield-place, Sussex.

FOOTERING iron, is a square frame of iron, fifteen inches wide, with nine cross bars in it of strong iron hoop. This grate hath an upright handle fixed by the four corners, with this the anes of barley is worked off; the barley is couched upon the barn floor, and the operator gets upon it, treading as much as possible with his feet, and with both hands working the footering iron.

FOOTING. of a hart is called slot of a buck, and all fallow deer the view; but if on grass, and scarcely visible, it is called foiling; a fox the print, and all vermin, the footing; of an otter the mark; of a boar the track; of a hare in open field, she staret, or doubleth, on road she pricketh, and on snow it is called the trace of the hare.

HOWLS. Young hens for laying, and old hens for sitting, are best ages from two to five years old; best time for setting is February; they sit twenty-one days; geese, ducks, and turkeys, thirty. (See Poultry.)

FRAY, her head, is when a deer rubbeth against a tree, is to renew it.

FREE martin, a barren heifer, generally allowed to be a twin sister to bull calf.

FRUMENTY; creck wheat, boiled in water and strained; then boiled in milk and sweetened it is also made of rice, but is not so rich.

FUBZE. Fifty-six pounds one bushel of seed, and one thousand seven hundred seeds in a cubic inch. Seven to ten pound of seed to an acre, sown for hay and mown every winter, as wanted for green food; it is to be bruised,

and one tenth of straw chaff mixed with it for horses. One acre of old furze, every four years, will produce one thousand of faggots, worth eight shillings per hundred. (See Bath papers.)

FUMENTS, or fewishing. (See Ordure.)

GALE sheep—a castrated ram.

GAME. A brace of cock pheasants five and half pound; another brace six pound; and six partridges five pound; two hares eleven pound to eighteen; ten woodcocks seven pound weight.

GARGET. (See Pigs.)

GARGIL, a distemper in cows.

GOSSAMER, (*tila virginis*) a kind of cob-web exhalation, supposed to be made by a flying spider, hovering in the air, in autumn. If it fall upon the grass, as oftentimes it does, and sheep eat it with the grass, the shepherds think it rots the sheep; therefore they keep them in the fold until it be gone off.

GATES, of the commonest description, with posts and hanging, cannot possibly be done under thirty shillings, to be durable. Farmers' gates should always be nine feet long at least, so

as to admit of good spurs on each side, to protect the gate and posts from carriage wheels, as farmers' carters are not first-rate drivers. For better gates, I refer the reader to T. N. Parker's Treatise on Gates and Irons.

GAUROWING, or second plowing of fallows;

GELDING, is a castrated horse; a gelt calf grows into an ox or steer; a gelded bull is a bull stag, as boar stag, ram stag; and a cow that does not hold her haling is a gelding.

GESE, *anas anser*. One gander will serve six; geese sits thirty days, and whilst sitting, should have carrots and lettuce chopped, and mixed with oats. Give the young goslings meal mixed with chopped cleavers, (galium aparine) goose-grass. In fan district they pluck the geese four times a year; feathers worth four-pence a time; ten quills annually, one penny; they lay twelve to sixteen eggs, and in warm weather the eggs will hatch in twenty-seven days; some get fat in stubbles; others will require twelve to twenty days shutting up in a dark place, well supplied with corn, milk, or water, and a small rack of fine hay; be sure before confinement, to cut off the little bunch of feathers that is upon their rumps, which are always moist and oily, with which they trim their feathers, which are

oily, and turn the water better than land fowls; they will fat sooner, and with less food. To fat green geese, shut them up at a month old, and they will be fat in a month, and be sure to let them have a small rack of fine hay. The Spanish geese are much better layers and breeders than English, particularly so if you set their eggs under an English goose.

GESTATION, or time of carrying; alias pregnancy; as the hare and mare goes twelve months, viz. hare one, and the mare eleven.

GIMMER, is a ewe lamb, or female fawn.

GRASS. Two square rod cut with dew in it in forenoon, weighed five hundred and eighty pound, and made one hundred and twenty-nine pound of dry hay; two rod more cut on same day, in afternoon, weighed five hundred and thirty-two pound, which produced one hundred and twenty-nine pound of dry hay also, and there was twenty-four pound of dew evaporated from each rod; this was, perhaps, as much grass as can be grown in this country; it grew on a marley loam in a mead, at foot of Maitz-hill; Greenwich; the grasses were *avena elation*, four and half feet high, *dactylis glomerata*, *alopeturus pratensis*, *phleum pratensis*, and *avena flavescens*; it grew near the gate where the cows used to

be milked. On some day, cut two rod in Greenwich marshes, weight two hundred and eighty-six pound, and made eighty-five pound of dry hay; first, gives four and half, and latter three ten per acre, which had been well dressed with stable yard dung, and soap ashes. The difference between new cut grass and hay, is as nineteen to five; and rye grass, and other besty grasses that are allowed to ripen their seeds, the difference will be as fourteen to five. The great art in procuring great crops is to keep the ground porous or loose, so as the roots can run, by scaring, dressing, and watering. Where this can not be done, 40,000lb. of green grass cannot be got, nor twenty, which is allowed to be a good crop of clover and rye grass. A cow will eat same weight of green grass as of turnips.

Grass seeds—alphabetical list in English and botanical names:—

Bent grass, <i>agrostes</i> , 19	Brought oyar, 172
Bistort, <i>polygonum</i> , 22	Meadow grass, <i>poa</i> , 18
Broom grass, <i>bromus</i> , 12	Oat grass, <i>avena</i> , 13
Canary grass, <i>phalaris</i> , 7	Plantain, <i>plantago</i> , 23
Cattail, timothy, <i>phleum</i> , 2	Quakeing grass, <i>briza</i> , 5
Cinquefoil, <i>potentilla</i> , 5	Rice grass, <i>arundo</i> , 8
Clover, <i>trifolium</i> , 40	Rye grass, <i>lolium darnelo</i> , 2
Cocksfoot, <i>dactylis</i> , 4	Rye, <i>secale</i> , 2
Canab, <i>tritium repens</i> , 12	Ribwort, <i>plantago</i> , 1
Darnel, <i>lolium temulentum</i> , 3	Soft grass, <i>halcus</i> , 6
Dogtail, <i>synosurus</i> , 11	Trefoil, <i>medicago</i> , 15
Fescue, <i>festuca</i> , 15	Vernal grass, <i>anadanthum</i> , 1
Foxtail, <i>alopocurus</i> , 5	Wheat grass, <i>tritium repens</i> , 24
Hair grass, <i>aha</i> , 10	Yarrow grass or millfoil, 24
Mat grass, <i>pardus stricta</i> , 1	achilla 31
Varieties, 172	Varieties, 288

1st. *Aira*; hair grass, six varieties, but none good.

2d. *Alopocurus pratensis*; meadow foxtail, five varieties;—this is the best grass we have, and it will do well in any land that other grasses can live in.

3rd. *Achillea millifolium*; yarrow grass, twenty-four varieties, but only fit to keep sandy land from blowing away.

As this work is not a treatise, but sketches, on agriculture, in course brevity is my motto; simply to point out what is good, and how to detect the evil: thus, *aira caespitosa* is the worst grass I know; it is known in moist meadows by growing in basal tufts, taller than any other grass, and if a leaf is drawn with its under side across the upper lip, will be found to be as rough as it looks.

4th. *Agrostis canina* and *stolonifera* florin grass, both are brown, bent, and good; there are nineteen varieties; they are all late grasses.

5th. *Anthoxanthum odorata*; sweet scented vernal grass, one variety only; it is this grass that smells so sweet in new hay: I do not like it, as its leaves are subject to rust.

6th. *Arundo donax*; reed grass, much used for thatching; there are eight varieties, the garden striped grass is one.

7th. *Avena elatior*; tall oat grass, is one of our most productive grasses; there are thirteen

varieties, but only this and *avena pratenses* good; the *avena flavesens* is to be avoided as wire, to cut for hay.

8th. *Brisa*; quaking grass, five varieties, none good.

9th. *Bromus*; broom grass, twelve varieties, all bad, and should be weeded out; by some called lob grass, by others mistaken for oat grass, as the panicles looks something like oats.

10th. *Carex*; sedge grass, there are forty varieties, many of them looks like pink plants among grass; those grown in marshy ground, are what is used for making hassacks and mats for churches, flag baskets, and sedge for bottoming chairs, generally called rush bottoms; there is a large sort grows in deep holes in river From, in Dorsetshire, provincially called sedge mocks. I once laid a part of that river dry, in order to straighten its course, and then the sedge mocks had something of the appearance of a large bear, standing upon its hind legs; nor was they easily grubbed:—upon the crown of one was a wild-duck's nest.

11th. *Cichorium intibus*, succory, or wild endive, four varieties, but none good to the farmer.

12th. *Cynosurus cristata*; crested dogstail grass, eleven varieties; it is one of our best upland

meadow grasses, and makes the very best hay and pasture for horses.

13th. *Dactyllis glomerata*; cocksfoot grass, four varieties, and is known by name of orchard grass; it is known in meads in hay time, by its quick growth: it is a valuable grass on all soils, and seed easily collected, and when clean is a beautiful sample of oats in miniature.

14th. *Ervum soloniense*, spring tare, or lentil, six varieties, and all good for green food, hay, and seed, or to be plowed in as a dressing for wheat; these are the vetches, and are easily known by the seed being flatter and grey; the winter tare seed is rounder and blacker, seed leaf long and narrow at first coming up.

15th. *Festuca pratense*; meadow fescue, fifteen varieties; of all others this is best with foxtail grass, for dry peaty soil, and *festuca ovina* for mountainous situations; they are late grasses, but very productive.

16th. *Hedysarum onobrychis*; saintfoin, twenty-four varieties.

17th. *Holcus lanatus*; Yorkshire soft grass, six varieties, very productive but no favourite of mine, only in pastures.

18th. *Hordeum*; eight varieties; four barleys, and four barley grasses; best not known; one sort very common, by road sides; in chalk districts, and in Middlesex.

19th. *Lathyrus pratenses*; meadow lathyrus, twenty-one varieties, this and little yellow bird's foot honeysuckle, good in pastures; they are between a pea and tares,—lotus.

20th. *Lolium perenne*; rye grass, three varieties; perennial, biennial, and annual; the annual bears seeds nearly as large as rye, and is a sad pest to rye growers in eastern parts of Sussex, as neither fan nor sieve can separate them; dandel *temulentum* makes good malt and flour, but is deleterious in either bread or beer.

21st. *Medicago sativa*; lucern, fifteen varieties. *medicago lupulina*, trefoil, blackseed, non-such, are all the same plant; it grows too straggling to do well by itself, but is excellent with clover and rye grass.

22nd. *Nardus stricta*; mountain mat grass, one variety.

23rd. *Panicum*; panic grass, eighteen varieties, none cultivated.

24th. *Phalaris canariensis*; canary grass, seven varieties.

25th. *Phleum pratense*; catstail, or timothy grass, two sorts.

26th. *Plantago lanceolata*; rib wort, twenty-four varieties, none good, no, not even the rib grass.

27th. *Poa trivialis* and *poa pratense*, are two of the very best meadow grasses, eighteen varieties, all good in rich moist ground.

- 28th. *Polygonum sagapitum*; buck wheat, twenty-two varieties, mostly weeds; the *polygonum bistorta*, or snake weed, is called sweet docks, and is much used in Yorkshire, by poor people, in spring, for herb puddings.
- 29th. *Potentilla verna*; spring cinquefoil, thirteen varieties, not in much esteem.
- 30th. *Poterium sanguisorba*; burnet, four varieties, good on thin land as a pasture grass.
- 31st. *Trifolium pratense*; common red clover.
 Ditto medium, perennial, cow, or marle grass.
 Ditto procumbens, or hop trefoil, yellow clover
 Ditto agrarium, annual, hop trefoil ditto.
 Ditto repens, white clover, &c. forty varieties.
- 32nd. *Triticum repens*, couch grass and wheats, twelve varieties.
- 33rd. *Vicia sativa*, or winter tare, twenty varieties, including garden and horse beans.

The following is the number of seeds in a cube inch of each;—

<i>Anthoxanthum</i> ,	17,500
<i>Avena elatior</i> ,	850
<i>Cynosurus cristata</i> ,	8,000
<i>Dactylis glomerata</i> ,	3,200
<i>Festuca pratense</i> ,	12,000
<i>Holcus lanata</i> ,	2,200
<i>Lolium</i> ,	2,500
<i>Phleum</i> ,	21,000
<i>Plantago</i> ,	4,800
<i>Poa pratense</i> ,	13,000

Potterium,	5,000
Trifolium red;	14,000
Do. white clover,	1,000
Alopecurus pratense,	

As a bushel measure contains 2150 inches, multiplied by any of these numbers, gives the number of seeds in a bushel. To count small seeds take the barrel of a quill; cut off both ends, and put in a cork; then try how many times the cube inch fills it, suppose twelve; then count the seeds held in the quill at once, and multiply by twelve. The cork may be thrust up or down so as to avoid fractions.

Grass seeds to be sown, per acre, as stated by Mr. Curtis, author of the Londinensis. The first column gives the proportions, for mixing; the second, gives the quantum of each per acre.

Meadow fextail,	1 pint,	45
Do. Fescue,	1 do.	45
Smooth stalked poa,	1 do.	22
Rough do. do.	1 do.	22
Red clover,	1 do.	18
White Clover,	1 do.	18
Dogtail grass,	1 do.	11
Vernal grass,	1 do.	11-192
Total—192 pints, or three bushels, 112lb.		

Application of the above seeds to fourteen acres of old meadow, lay in East Greenwich marsh, of a peaty nature, substrata strong retentive nut brown brick loam. A Mr. Russell

excavated seven acres just by, to seven feet deep, for a tide mill pool, in which were found many fir and yew trees, with their roots and branches.

Five acre, 3 rood, broke up in autumn, in 1801, and sown in spring, with oats; in 1803, manured and planted with potatoes, produced forty ton; and same autumn, sown with wheat, produced in 1804, seventeen load and ten truss of straw, and seventeen quarters of wheat.

Eight acre, 1 rood more, broke up 1802, fallowed and sown with oats 1803; five acres of the middle part was lower than the sides, which was so infested with wire-worm, that they destroyed six acres of the oats. Planted with potatoes, manured in 1804, and lost six acres of them by the curle, alias wire-worm, and sowed the ground with turnip seed, without plowing, but well scuffed; I sold the turnips for twenty-seven pounds, and had fourteen ton of potatoes from the high dry borders of the field, in winter; I laid out eleven guineas in revelling, by carrying the high sides to low middle; I then set on 116 load of well-rotted manure, upon the fourteen acres, and plowed it in, in March.

I had some doubts of the propriety of adopting Mr. Curtis's mixture, as I considered it too heavy and expensive, and I got 112lb. of fescue and foxtail grass seeds, which I analyzed by my cube inch box and quill, barrel measure, which proved the mass to consist of—

Fescue,.....	4 bushels.	Cocksfoot,....	1 bushel.
Roxtail,	2. Do.	Dust, waste, 1	Do.
Total—8 bushel, strike measure.			

112lb. meadow and dogstail grass seeds, mixed, and when analyzed, were in the following proportions:—

Dogstail,	8
Mead grass,	4
Common do.	4
Nondescript,	3
Fescue,	1
Cocksfoot,	1

In all five bushels; this proves there is no confidence to be placed in seeds from London seedsmen, any more than those obtained from an innkeeper's hay loft.

112lb. tall oat grass, and cocksfoot grass seeds, mixed in the following proportions:—

Oatgrass,	15	Cocksfoot,	9
----------------	----	-----------------	---

In all nine bushels.

161lb. soft grass seeds; fifteen bushels in two four bushel sacks, which proves they measure strike measure, and put lightly into the bushel. The above thirty-seven bushels made a composition that measured out thirty-three bushels, of fifteen pound a bushel. Some of these are very bad to sow separate, and are good to sow mixed, as the smooth and small keeps the rough and large from hanging together. Timothy grass, red and white clovers, and rib grass, were mix-

ed, and sown after the others. Having thus arranged my seeds, the seed furrow was given, and seeds sown 15th to 18th April. The yoke-ings, lands, or ridges, were nine yards wide; to sow from furrow to middle was just one cast, and from middle to furrow was another cast, and took just one hour to sow one acre twice over, with one bushel of barley.

In sowing the light grass seeds, I had five casts to each ridge; and for the heavier small seeds, three casts to each ridge. The barley was harrowed in before the grass seeds were sown, and the following synopsis shows the weight, value, measure, and number of seeds per acre:—

Number of Varieties.	Number of pints per acre.	Names of grass seeds sown.	Pounds of each.	Pence per pound.	Price per acre.		Seeds of each Variety per acre.
					s.	d.	
1	4	Red clover	4	13½	4	6	67,000
2	6	White Clover	7	13½	7	10	12,814,060
2	2½	Ribwort	2	12	2	0	364,800
4	7	Timothy grass	4½	30	11	3	5,593,000
5	84	Soft grass holcus	12½	4	4	6	2,100,300
6	30	Tall oat grass	3½	27	7	10½	653,250
7	20½	Meadow fescue	7½	18	11	0	1,584,666
8	16½	Do. foxtail grass	2½	44	7	10	448,450
9	14	Dogtail grass	9	48	18	8	2,424,730
10	3	Poa pratense	2	48	8	0	1,212,134
11	14	Cocksfoot grass	11	18	16	0	2,520,700
12	3	Poa Trivialis	2	48	8	0	1,212,134
13	4	Rye, fescue & nondescript	2	48	8	0	1,278,494
208½ Pints, or			69½ lb.		116 Shillings.		

This table shews there was upon every acre two hundred and eight and a half pints, or three and a quarter bushels; weight sixty-nine pound and a half; number of seeds per acre, twenty-six millions, one hundred and ninety-two thousand, eight hundred and four, or four and a quarter seeds to every square inch, which is too much by half for such well prepared good land, yet it is but little more than half the weight of Mr. Curtis's table of seeds, for an acre cost £5 16s. 0d., one third of his price; the above seeds were for twelve acres out of fourteen. I sowed one acre with paceys, ryegrass, two and half bushel, weight fifty-six pounds, at twenty-one shillings—

A bushel,	....	....	9,474,000 seeds.
7lb. timothy grass,	....	5,593,000	do.
6lb. white clover,	....	2,814,000	do.
4lb. red do.	....	670,000	do.
2½lb. ribwort,	....	364,000	do.

18,915,000

The other acre sown with common rye grass seed, at seven shillings a bushel. Seeds per inch same, and same weight as paceys.

For the result, see Barley under the letter B, where will be seen the absurdity of sowing corn, with grass seeds, in rich land; also that of mixing red clover with natural grasses; for when

they have done all the mischief they can, they go off in two years.

The following is Mr. Curtis's table of seed for one acre, and I have added the number of seeds.

No.	Names.	Pints.	Parts.	Pounds.	Pence.	Seeds.
1	Meadow foxtail,	42	666	4½	236	1,483,376
2	Meadow fescue,	42	666	15	270	2,866,782
3	Smooth mead grass	21	333	14½	681	9,303,840
4	Rough do.	21	333	14½	681	9,363,840
5	White Clover,	21	333	24	324	10,319,520
6	Red do.	21	333	21½	288	3,583,440
7	Dogstail grass,	10	666	7½-10	241	2,860,800
8	Vernal grass,	10	666	11	990	6,258,000
3 bushels.... 191—996				112½		45,909,598

Here is three bushels of seed, weight one hundred and twelve pounds, market price £15 9s. 3d. to seed one acre. In analyzing the 161lb. of soft grass seeds, I found 2,000 seeds of soft grass in a cube inch; 100 of rye grass and fescue; 28 tall oat grass; 17 of the pernicious broom-grass, besides fifteen dock seeds; this 161lb. was sold as pure unsophisticated holcus. Fifteen bushels for twelve acres gives 2,687 cube inches to one acre; and fifteen dock seeds in each inch, will be nearly one dock seed to every square foot, or a fraction above eight per yard; query, whether the broom grass and docks should be sifted and drawn out in hay-loft, or sown, and afterwards weeded, and each dock to be drawn with a pick-axe, which, when properly shaped, is by far the best dock iron.

In year 1822 I had two small fields, two acres each, to lay down, and being sensible of the advantage of having good seeds, as the orchardist is of planting apple-trees instead of crabs, and seeing so many printed accounts of a seed-shop, in London, supported by the Board of Agriculture, for more than twenty years, I commissioned a friend to apply to this agricultural seed-shop, and I received eight bushel of foxtail grass seeds, at sixteen shillings a bushel, weight forty-six pound, or almost six pound a bushel. At same time, six bushel, weight ten pound a bushel, price eighteen shillings a bushel, marked fescue. I sowed them separate in each field, and the fescue proved to be rye grass of the worst sort, as there was not a single plant of it to be found the summer following, viz. 1824. With proper sieves, made of brass wire, the farmers might dress their own hay seeds to what variety they please, all separate, (by using different sieves, whose meashes were four, eight, twelve, sixteen, and twenty meashes per inch) to a certainty, and much cheaper than buying from seedsmen.

10. GRAVEL, alias ballast. One bushel, strike measure, weighs one hundred pound. One cube foot eighty, some ninety pound the bushel, was common farm bushel, so narrow, that when up-heaped, only weighed one hundred and twelve pound. To up-heap the Guildhall or waterside

bushel would take more than double of twelve pound. (See Measure, and Sand.)

GRAMINIVOROUS; grass eaters.

GRAMINEOUS; grassy.

GRINDING corn, at old soke mills. Their multure for grinding malt, one gallon per sack; same for hard corn, as rye, barley, and wheat, and if more than three pound in a sack of four bushels is missing, beside the multure, there is something wrong. Multure of oats, beans, and pease, one sixteenth or two gallons per sack. These two last are properly called hard corn. Twelve bushel an hour is good work for one pair of stones to grind wheat well, and sixpence a bushel is the grinding price now, dressing included.

GREEN scour, in sheep, stopped with a wine glass of verjuice, and for a cow a pint.

GRANARY should be rendered secure against vermin, dry, and airy; then grain may be kept twenty years, if put in with discretion, say a foot thick at first; turn it twice a week, and screen it twice a month, for three months; then it may lie half a yard thick, and turn it once a week, and screen once a month, for three months; and

then it may be put together in any quantities, and must be turned and screened, discretionally. Keep out the air; the granary should stand in an airy situation, but to admit air, you admit damp and animalcule, that will soon stock the granary with insects. Grain is said to be at par with butchers' meat, and with each other, also for the grower and consumer, as rent, taxes, and labour now stands. Good wheat should be 20 pound a load of 5 quarters, and all the six varieties of English corn should weigh per bushel, in pounds, as stated in the table, to be worth as many shillings a quarter, of eight bushels, as stated below—

Wheat,	....	60lb.	....	80s.
Beans,	....	60	....	60
Pease,	....	60	....	60
Rye,	....	60	....	60
Barley,	....	50	....	40
Oats,	....	40	....	30

Then they are at par, which seldom happens on account of seasons, imports, peace or war.

GRAZING. Lincolnshire fens costs twenty pounds an acre to stock it, with one bullock and six sheep, rent 60s.

Kent rumney marshes costs fifteen pounds an acre to stock it, with half a bullock and five sheep, rent 30s.

Somersetshire marshes costs ten pounds an

acre to stock it, with half a bullock and three sheep, rent 40s.

Dr. Dickson's practical agricultural work:

Vales, between hills, in West Riding of Yorkshire, costs five pound an acre to stock the well limed pastures, and will graze half a good sized cow, five or six months, so that one acre of hay is wanting for two acres of pasture; here, the rent is forty shillings an acre. Beef, mutton, &c. at sixpence a pound by the carcase, or sevenpence retail, is about par with the above corn prices.

GRATTEN ground, is wheat, oats, or barley sown with grass seeds; to lay one year, is a stubble gratten; and if it lays two years, it is a grass gratten, in Dorsetshire, and is so bare sometimes, that they distinguish it from their cow leys, ewe leys, and hog leys, by the appellation of lark's leys.

GISE ground, at Tadcaster, 9 miles west of York—

	£.	s.	d.
Horses four years old,	6	10	0
— three do.	5	0	0
— two do.	4	0	0
— one do.	3	0	0
Cows, three years and upwards,	4	4	0
Heifers, two do.	3	3	0
— one do.	2	2	0

From 13th May to 13th October.

Match cows, Fixby, £4. 10s. Yorkshire hills.
In Shropshire, from 20th May to 30th October.

	£.	s.	d.
Cow cattle, one year old,	1	3	0
Two year old heifers,	1	10	0
Two year old steers,	1	15	0
Three year old cows,	2	7	0
Yearling colts,	2	2	0
Two year old colts,	2	14	0
Three years and upwards,	3	6	0

Middlesex and saltmarshes 1s. per day. Southwick park, Hampshire, Mr. Thistlethwaite, 1815, horses, five shillings a week; two year old colts, 3s. 6d.; cows, 3s.; heifers, 2s. 6d.; yearlings, 2s., from May-day to Michaelmas—none to be changed.

GROWNING, of male deer, at rutting season, October.

GUTS. Sturm tells us that a man's guts is six times his own length, and that he hath upwards of 18lb. avoirdupois, of blood in his body, and 4lb. of brains in his head. I do not think he hath over-stretched the guts, but surely he hath been too liberal in blood and brains. Now according to tables of specific gravities, a cube foot of man's body weighs seventy-one and a half pounds, and his head by measurement, eleven pounds. In bullocks, deer, sheep, and pigs,

the head, pluck, and blood, is generally of nearly an equal weight, and the fair inference is man hath eleven pound of each, avoirdupois weight; hogs' guts, 90 feet long:

GYP SUM, or plaster of paris. I tried it once upon wheat, upon a moist calcareous soil, said to be the kind most benefitted by gypsum, but could never see the slightest shade of improvement from the other part of field.

HACKLE, to dress hemp or flax.

HARROWING, eight times or times, seven acres in one day, by the same power that hath plowed one acre. The harrows cannot be used too much on dry ground, but horses should be kept in the furrows of moist or clay land, particularly on wheat sowing; this shows that if the plowing cost fourteen shillings, one harrowing two shillings, mark well what is called one time the harrows goes twice over; and to put seed wheat into ground, well plow four times, and harrow twice over each time, and three or four to bury the seed.

HART, is a stag of six years old.

HAVIORS, (young or yearling male deer castrated) are in season at five years old, at any time, or all the year.

HARVESTING: in farming districts, general practice is, to give seven to ten shillings an acre for reaping wheat, with bed and board; others engage a man to every ten or fifteen acres, according to weight of crops, at about fifty shillings, on a supposition of five weeks, bed and board at ten shillings a week, to obey the farmer's orders to any work, night or day, as business and weather urges, and if they can finish in three or four weeks, or any earlier period, they are released, with full pay.

Time of beginning depends upon seasons; soil and situation will vary a month, between calcareous, south, and marley hills, in west of Yorkshire: in wet summer of 1816, nothing cut in Buckinghamshire, except a little rye on seventeenth of August; on sixteenth October, I saw wheat and oats standing uncut, and women drawing flax, in the vale of Ailsbury, Bucks.

In 1817, wet and backward as last year; beans in such a state as not to be stacked, but made into rangers, seven or eight feet high, and wide, in November, for the wind to blow through, and thatched to keep out the wet.

In hot summer 1818, rye and pease harvest was begun on ninth July, wheat, nineteenth. I tinned a field on sixth of August, of wheat, the field half a mile from rick yard, road level and good, two pitchers, two leaders, and a boy in field to move the horses, three waggons, one man

to drive to rick, five horses and five men at rick, thus marshalled, they got home three loads per hour;—crop and loads as under:—

11 Acres	produced	3100 sheaves.
10 Acres	produced	3844 sheaves.
Total 21 Acres,	.....	6944 sheaves.

All one field, light and clean.

Carried in at twenty-three load, of three hundred sheaves per load, of twenty-seven cube yards, each load measured five feet above raves of wagon: dimensions;—15 multiplied by 7 by 7, is equal to 735, which divided by 27, gives 27 yards.

Harvest of good barley commenced fourth of August, but the barleys injured by drought was not fit for scythe until fourteenth, being bland ripe, alias twycrop.

1819, harvest finished from river Thames to Sussex sea coast, twenty-ninth August, except beans, and they were dead ripe.

1820, harvest began in Middlesex, wheat, oats, and barley, thirty-first July; Cheshire, Lancashire, and Yorkshire hills, not until twenty-first August: Middlesex wheat bloomed fifteenth July; Yorkshire hills wheat bloomed thirty-first July: this proves that wheat takes a week longer to feed it after blooming, on the Yorkshire moist marles, than it requires on the Bucks dry sandy gravelly soil, upon a substrate of chalk.

Wheat that hath much grass or weeds in it, should be cut four or five days before it is ripe, to

give it time to ripen, whilst the weeds wilt, or else there will be much of the best grain shake out.

Price for shearing wheat, fourteen to eighteen shillings an acre: and thin crops best mown, particularly when straw is short.

In 1807 I had thirty acres of wheat mown

at per acre	5s. 6d.
Making bands, taking up, binding, and	
setting up	5s. 6d.
Pitching on to waggon and loading, per	
acre	1s. 6d.
Raking, and cocking rakings	1s. 6d.

£0 14s. 0d.

Five load of rakings produced thirty-one bushel of prime wheat: the crop was light; as there were only three hundred and twenty sheaves per acre, and sixteen bushels wheat when thrashed, besides one in rakings. There were forty-five moderate or small waggon load of sheaves; measured on waggon fourteen cube yards, and eleven in mow. A good crop of wheat will produce six hundred sheaves to every acre, each sheaf well bound, and thirty-six inches round.

Beans shearing, from five to ten shillings an acre, for cutting, binding, and setting up, as the bands are always carried to the field; either straw, tar twine, rope yarn, or old junk,

Broadcast beans, if a good crop, will produce as much again of straw as drills of eighteen inches

intervals, and three times as much as the drills of three feet intervals: this I proved on fifteen acres, five of each; yet there was not much difference in the produce of grain;—the three feet rows, four shillings per acre; the eighteen inch rows, eight shillings, and broadcast ten shillings, for cutting. Some of the broadcast were so short that I had them pulled, but cannot recommend the plan, it makes so much dirt in the barn; and in stiff land and dry weather, costs fifteen shillings an acre, and blisters the skins of the puller's hands.

Rye, seven to eleven shillings, shearing and setting up. Barley, an extraordinary crop, lodged and grown through with corn bind, produced eleven sheaves per rod, each sheaf three feet girt: a stout, good reaper, cut sixteen sheaves per bush, one hundred and twelve ten sheaf rivers, or stichers, per acre, at two-pence halfpenny each,—£1 2s. 10d.

Seventy hours making bands and sheafing; binding 1120 sheaves, eight hours; setting up ditto, four hours; exclusive of rest: the other part was—

Let to mowers; at per acre.....	0	9	0
Turning swathes twice.....	0	11	0
Cocking 3 swathes into 1 row of cocks.....	0	0	9
Rakeing and cocking rakeings.....	0	0	6
Rakeing after carts.....	0	0	9
	<hr/>		
	£0 12 0		

See Barley, under letter B.

Common prices for mowing and cocking is four shillings; viz. three shillings and sixpence for mowing; and sixpence cocking. A fair average crop is thirty waggon loads from twenty acres, and may be sent in by four men and a boy, with

two women to rake after. Such a crop will lie fifteen cube yards, or ten to each load, when trid into mow, or settled in rick or stack; and thirty-four bushels of clean barley per acre.

Oats, shearing, eight shillings; and mowing, four shillings as per barley. Eighteen acres produced thirty loads in field, and forty bushels of oats per acre; these loads, when mowed, in barn, only measured to fourteen cube yards, and the wheat eleven yards.

Hooking, or bagging pease, per acre, four shillings.

Mowing or hooking tares, lentils, or vetches, for seed, or hay, five shillings per acre.

HALO, or light vapour, as appears sometimes round the sun, and moon, and when imitated by painters round the head of our Saviour, Jesus Christ, is called glory.

HATTOCK, stook, or shock, consists of eight sheaves of corn, set up in the field to dry; in hilly parts of Yorkshire it is six, and two at top, with butt ends uppermost, the corn ends opened in form of a mantle cloak, or bonnet, called hooders, to keep the other six dry.

HAYMAKING : the mode is too well known to need any description, except the contrasting the south discipline in the field with that of the north.—In the north, all teding and spreading is done with the hands without forks; in the south they manage better, as they ted and spread all with forks, but all the other parts of haymaking is as defective, compared with the northern system, as an hostile mob compared to a troop of well disciplined soldiers. The price, or cost of haymaking, depends upon weight of crop, situation, as to wages and weather, in 1805, haying in Greenwich marshes as under;—

	£	s.	d.
Fifteen acres mowing, at 6s. 6d.	4	19	6
Allowance for beer, at 8d. an acre	0	10	0
Men haymakers, 19 days, at 2s. 6d.	2	7	6
Men 'a' quart, and women a pint, of porter each, at 3½d. a pot, or quart	0	14	6
Women, fifty-nine days, at 16d.	3	18	8
Three carts and three horses, and driver three days, 1 mile to rick	1	17	6
One pitcher, one loader, one unloader and two rickmen, three days each, at 3s. & boy on rick at 1s. 4d. per day	2	9	0
Pulling the sides and ends of rick 3 days	0	9	0
Sixteen days after, two men, three days, pulling and topping up the rick, previous to thatching	0	15	0
Beer to the whole of carting & stacking	0	18	0
Cutting four hundred of reed for thatch- ing, at 3s. 6d.	0	14	0
Thatching rods and rope yarn 4s.—11½ square thatching, at 1s. 6d.	1	1	3
	<hr/>		
	£20	13	11

Thus fifteen acres is secured, at £1 7s. 7d. per acre, each acre producing two loads of dry hay.

These are London loads of eighteen long hundred, or one hundred and twenty-six stone of sixteen pounds; the hay was nine days in hand, and cost about two shillings an acre more than it aught on account of broken weather. The annexed table is the labour required to each acre, in hours, according to crop:—

	2 load per acre.	1½ load per acre.	1 load per acre.	ton.
	hrs.	hrs.	hrs.	hrs.
Spreading swathes	12	8	6	4
Windrowing	6	4	3	2½
Rickling, alias foot cocks	5	4	3	2
Spreading ricklings	5	5	5	5
Windrowing	4	3½	3	2
Putting up and cocking	6	5	5	5
Raking and topping the cocks	8	6	6	5
	46	36	25	18

Allowing nine hours per day, exclusive of meal-times, shows that four days will be required to an acre that hath one and half load upon it, at eighteen pence per day; including beer, is six shillings an acre; and those parts of table where no time is put, it is supposed the labour is lessened by throwing it closer together. These operations were all performed in fine hay weather.

The first heavy grass took a week, mowed once a day; the second took five days; third and fourth, four days. In casualty weather, it is necessary to make hobblings, or three feet high grass cocks, before it is dry enough for hay-cocks; again, it frequently happens, in fine weather, that it is loaded out of cock-row, and takes fire. Two pitchers and two loaders will load two waggons per hour, with one ton each. Received for thatching, 400 sheaves, 3 feet girt, 17s. 6d.—£3 10s.

Rowen, or fog hay, from same marshes, six and sixpence mowing;—spreading swathes, six and a half hours; windrowing, three and a half; rickling, five; throwing into beds, thirty feet wide, so as to clear thirty feet between the beds, and then spread, took four hours; windrowed in two; cocked in three; owing to worm casts it was badly mown, and took six hours to rake it; opening and spreading cocks, and re-cocking, six hours: total expense for making;—

	£	s.	d.
Thirty-eight hours labour, cost per acre	0	9	9
Cost getting home and stacking, exclusive of carriage	0	7	9
	<hr/>		
	£0	17	8

No beer allowed, the days being short and cool. Began haymaking third October, finished on fifteenth, and as soon as the rick got into a good

hent, I had it turned over into a new rick; adding one load of new barley straw, in proportion to two of hay;—it heated well, and made excellent blend fodder. Expense of turning rick, and well mixing the straw, three shillings per acre. Twelve hundred weight of year old rowen hay is as good crop per acre.

(In Sussex) I always paid four and sixpence for mowing dry meadow; and five shillings for water mead, on account of ditches; and nine or ten shillings in that climate will cover all the rest, and thatch the ricks.

HAY SEEDS: to procure good, let a corner of the meadow grass stand three weeks after blossoming to ripen the seed; and when mown, draw out the desired sort out of swathe, and thrash it upon a cloth, having a piece of clean ground well prepared, sow it immediately, and it will produce seed that time twelve months; prepare and sow again, and so go on, until the quantity required is obtained.

HAUNT, or the stalk of a deer, or where he lies by day.

HAWES, or white thorn seed: to gather it for raising quick thorn hedges, may be gathered by boys and women, some years, picked clean and

free from leaves, in November, at two shillings a bushel, or eighteen-pence, in Dorsetshire.

HAYSTACKS will average at eight yards per load, of 2016lb. or eight yards and eighty-eight parts per ton: this average was taken from sixteen different ricks; the heaviest was four hundred and fifty-four pound per cube yard, and the lightest, one hundred and eighty-five pound to a cube yard;—average, two hundred and seventy-seven pound, or seventeen stone, of sixteen pound per stone. The heaviest was rowen, or fog hay, brown as tobacco, and would have fired if the rick had been larger; it was a round one, of only five loads; the cattle was fond of it; the lightest hay was over grown, and over made in the field.

From eighth January to seventeenth February.

Cows eat forty-three pound per head, per day.

Small sized cart horses eat thirty-one pound.

Two ponies, and a three yearling colt, eat forty-eight pound; that is, one hundred and twenty-two pound per day, for last forty days; next fifteen days, one hundred and nine pound; next seventeen days, they eat per day only eighty-five pound: from nineteenth March to May-day, per day, only eighty pound; from first to twenty-eighth May, forty pound per day only;—one cow and one horse, two ponies and

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ery little hay; but
for swine, I suspect

as long, without something
My author is an economist,
with him most cordially, by recom-
to swine-keepers to collect bullocks;
; make them into black-puddings; stuffed
with bullocks' blood and sawdust, they can be
boiled without any expense in the boiling water
for tea; the tea would be enriched; and to fatten
or make up the swine, make the tea into pottage
with sunflower meal, which he so strenuously re-
commends for the fine flour, from its seeds.

HEMP, (*cannabis sativa*.) One cube inch
contains three hundred to three hundred and
fifty seeds. One bushel will weigh thirty-five to
forty pound. It affects rich moist land; if sown
broadcast, two bushel of seed to an acre will
produce fourteen bushel of seed; but if sown in
drills, of one foot intervals, one bushel will be
sufficient, and is infinitely the best system, as the

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HAY TEA, to make. Our northern neighbours are very good in communicating their knowledge; they tell us to boil one pound of clover hay in six quarts of water, and boil it down to four quarts, then take out the hay, and mix up one pound of barley, bean, or oatmeal, with one pint of water, beat and mix it well up and put it to the tea, whilst boiling, and keep stirring it whilst it is mixing, to prevent it from being lumpy: cheese wey may be added to this for calves. We English, are so far beyond our brethren, that we should never have been able to make such by name, for such a decoction would be termed here calves' porridge, or Scotch broth; linseed jelly might be added to an infusion of hay by way of cream—this is what we call hay tea. A first-rate writer in the south, tells us how to use hay tea, but whether he means tea, or broth, I cannot stop to inquire; he recommends mowing down turnip tops, as they are wanted to be given to swine with hay tea, to save the hay-rick; this is very good, and the author hath made it his own by substituting swine for hogs. West of London is a place called Hammersmith, behind that is a place called Turnhamgreen. A wit, dining in London, seeing a plate of French beans a bad colour, recommended their being sent to Hammersmith; being asked why, he answered that is the way to turn-ham-green. A retailer of second-hand wit;

dining in London also, on seeing some pease a bad colour, said they should be sent to Hammer-smith; being asked why, he answered that was the way to make them green. There is a slight error in substituting swine for hogs, as in substituting makeham for turnham; but if my author really meant pigs or swine, I beg his pardon, as I did not know they ever eat hay. Sheep or hogs will live on turnip tops, and very little hay; but turnip tops and hay tea, for swine, I suspect would not support them long, without something more substantial. My author is an economist, and I join with him most cordially, by recommending to swine-keepers to collect bullock's guts; make them into black-puddings, stuffed with bullocks' blood and sawdust, they can be boiled without any expense in the boiling water for tea; the tea would be enriched; and to fatten or make up the swine, make the tea into pottage with sunflower meal, which he so strenuously recommends for the fine flour, from its seeds.

HEMP, (*cannabis sativa*.) One cube inch contains three hundred to three hundred and fifty seeds. One bushel will weigh thirty-five to forty pound. It affects rich moist land; if sown broadcast, two bushels of seed to an acre will produce fourteen bushels of seed; but if sown in drills, of one foot intervals, one bushel will be sufficient, and is infinitely the best system, as the

intervals may be hoed once, and as the plants hath large palmated leaves, and grows six feet high, they will smother the weeds as completely as a good crop of clover and trefoil; and leave the ground as good for wheat. Sow in March or April, and in August or early in September; the male may be drawn by pulling alternate lines; or pull two lines, and leave every third for female or seed hemp, which is allowed to be better and makes stronger cables than the male, the fibre being stronger by standing to ripen its seed: A good crop will cost twenty-five shillings, pulling; cutting off the roots, and thrashing out the seed in field, one pound; retting or watering, one pound; rateing or grassing, fifteen shillings; breaking and swingling, one pound.

750lb. of hemp, at 7¹/₂d. a pound, £23 10s. 0d.

14 bushel of seed at 7s. 4 18 0

..... £28 8s. 0d.

The process of different operations same as flax.

HEAD and foot lands: It is the practice in Hertfordshire, thirty miles east of London, when draining and fallowing; to cart the manure intended for the land; upon the head and foot lands; and turn it over with a spit of the earth; that hath been accumulating by the plow since last draining. One waggon load of straw is required to cover the drains of one acre.

HEATH, is used in East Sussex instead of straw for thatching; it also supplies London with Heath brooms, alias besoms. It is mown young for hay, in mountainous districts. Heathy land is always a mixture of vegetable matter and sand, and when it rests upon a substrata of marle, and is converted to arable land, as soon as the heathy vegetable matter is subdued, so as the plow can reach the marle, it becomes our first-rate turnip and barley land. In some situations marle may be carted on as a top dressing, and where the substrata is black sand or gravel, such is incorrigible, and should be planted with Scotch pine; and where open heaths are indispensable, the barbarous system of burning in spring, to renovate it, should give place to mowing, which would preserve the grass, and protect the sitting more game, from the ravages of fire. Surely it would be worth trying upon a small scale, with a sharp heavy sneathing hook, alias pease or staff hook, and if they found it answer, then get short stiff scythes, called sneathing scythes, that are used for mowing brakes for burning into soap boilers' ashes; they would find that the stock would graze on the mown parts in preference to any other, and the mown heath stubbles would shoot up vigorously, whereas the burnt heath is some years before it recovers. Should the stock lay so hard upon the small mown part as to keep it down short, recollect it is because there is not

more mown; as my predecessor laid two or three loads (horse loads) of lime upon a patch in a pasture; it sweetened the herbage so much, that the stock always kept it eat down close, and he declared the lime had so injured the ground, that it had never produced a good bite for the cattle since he laid it on, nor would he ever lay on any more.

HEDGES; single line of quick thorn plants at about eight inches apart, makes the best and most durable hedge, for if planted closer they injure each other. The best line to plant by is Gunter's chain, a plant to each link. Roots of thorns will grow if cut four to six inches long, out of roots of an inch circumference; cut any time in winter, and buried in the earth, or thrown into cellar, until latter end of March or beginning of April, then to be planted with the tops just level with the ground. Good nursery plants, of above thickness, are worth three shillings per hundred. Never clip a hedge, but shroud it up in form of a hog-mane, with sneath, pease, or staff hook. In low rich land, never admit of hedge row timber, except one tree in each corner; but in poor exposed situations, plant by walks or in hedge rows, elms and yew-trees at one rod from tree to tree, and to be pruned out of the cattle's reach. (See Inclosures and Fences, and my Dendrologia.)

HRIFERS; reared in spring, will be a good age to take bull in July twelvemonths, nor should they ever be bulled under sixteen months old.

HERDLES. Welsh, or bar herdles, and common wreath, or wattle herdles, for sheep, are too well known to need a comment.

HEXAGON, is a geometrical figure, as N, in the frontispiece, by which bees and wasps form the cells in their combs; nor is any other form so convenient for their purpose, without loss of room and waste of materials, as the six sided polygon,—Excellent geometricians.

HIDE of land, a certain provincial quantity, said to be one hundred acres.

HINNUS, or ass mule, (see Muls.)

HIND, a female red deer, alias stag's doe.

HOG, sheep, as ewe hog: wether hogs, are young sheep, from one to three years old: a term of distinction for fleeces, with woolstaplers, as one shear hogs, and two shear hogs. The proper name is, with shepherds, two tooth, and four tooth ewes and wethers. (See Wool.)

HOLLY berries: I have had them gathered in Dorsetshire, for one shilling a peck: they, like the haws, require to be pitted, or buried, a year before they are sown, in the seminary, or nursery, to raise plants for hedges.

HORDEUM, or barley, of fifty-four pounds per bushel; one cube inch contained 205 grains! Such barley hath twelve pound of husks, and forty-two of meal; (see Barley) but good barley land will grow barley with no more than four pound of husk, or skin, to a bushel of barley.

HOPS, *humulus lupulus*, grows wild in many places; I have seen good in Yorkshire, but it is not one year in seven that the season suits them so far north.

HONEYSUCKLE; *trifolium procumbens*, hop, or yellow clover, and *trifolium agrarium*, hop trefoil, are not cultivated, but frequently met with in pastures, and poor hay meadows: it is good for the buyer but not for the grower. The latter is only an annual.

HORSE, the most beautiful and most useful animal in the whole brute creation, and least liable to casualties, when fed and worked with discretion. The most general incurable complaint is that of thick or broken wind, which is always

the effect of eating mouldy hay, musty corn, or cold, by interrupted perspiration. I once lent my mare to a clergyman, to ride to church, four miles distance, road exceedingly rough, with rough stones; hard frost and cutting wind made the mare and rider anxious to get home: the mare was a good trotter, free and sure footed; but to keep upon her feet upon such road, the exertion had heated her as much as to have trotted on good road ten miles within the hour would have done. The unthinking gentleman on arriving at home, instead of putting the mare into his stable, fastened her by the bridle in a windy gateway, and there my man found her, trembling with cold, and hair like a stiff frozen coat with sweat: in three days after, in a gentle trot, I felt her lift under me in her labouring for breath, from the rising of her lights, her wind was broke. I once sold a three year old heifer, to a person who sent his man for her; he had to drive her five miles, in Beer Forest, Hants; I offered to let him have two or three more for company, being certain an active Devon heifer was not to be drove by one man through an open forest from home: he took her and lost her, in cold frosty evening. She got home, and stood at yard gate until morning. The man fetched her, in company, and in a few weeks she was returned as unsound, so that by his athletic powers and obstinacy, I lost a twelve guinea heifer, by

interrupted perspiration also. This I consider as indiscreet working; and after neglect:—now for feeding. Mr. Middleton tells us, in his agricultural survey of Middlesex, horses in London are fed on green rye, and green tares, from first May to first August, with half a bushel beans, weekly; from first August to first November, on fog, alias aftergrass, and one bushel beans, weekly; then first November to May-day, they are lying on nights in stable:—weekly allowance; three pecks beans, one bushel of horse pollard; and as much chopped tare hay as they will eat, and be racked up every night, with tare or good clover hay. Barley is too hot for horses, and beans is not so good as oats for coach horses, and other horses of speed. A tranting team that I used to employ to draw timber occasionally, its master gave me his bills for keep of four large overworked horses, for hay and corn, bought first February, 1807, which lasted exactly to first March, twenty-nine days. £ s. d.

One ton and thirteen hundred weight			
of hay	....	8	6 0
Five quarters oats, at 32 shillings	....	8	0 0
Fetching in hay and corn	....	1	0 0

is exactly one guinea per week for hay and corn for each horse, and the daily consumption thirty pound of hay, and three gallons of oats.

Large coach horses eat thirty-eight pound of hay per day, thirty weeks. Saddle horses only

eighteen pound; coach horses, two bushel oats; saddle horses, one bushel and half weekly. I once let a groom have what quantity he chose to give ten horses for seventeen weeks, before I told him that six pecks a week was the allowance to each horse, nor did he know that his hay and straw were weighed; the result was very fair, and averaged ten and half quarts of oats per horse, seventeen pounds of hay, and eleven and quarter pound of straw per day. There was an understanding between the groom and smith, not just right, as his bill for shoeing ten idle horses, seventeen weeks, was £12.1s. 6d. Dutch cavalry are allowed fifteen pound of hay, and ten pound of straw cut, to ten pound of oats. British cavalry horses are allowed, in home barracks, ten pound of oats, fourteen pound of hay, and four pound of straw for litter, in summer, and ten pound, in winter; so that by these experiments any one may know what expense his horses ought to be kept; at knowing the price of hay, corn, and straw; size of horse, and work to be performed. Medium sized horse is fifteen hands; two extremes, twelve and eighteen; with some exceptions, for I once gave a shilling to see a Berkshire bred horse, at Dixon's Repository, Barbican, London; he was rising six years old; he was nine feet long from ears to hip, and nine feet girt close to fore-legs; his face was exactly three feet long; from ground

to girting place three feet nine inches, and from ground to withers six feet ten inches, viz. twenty and a half hands high. Such a horse kept in London would cost an incredible sum for one week, in year 1813, when hay was at £7 10s. per load; oats, £3 10s. per quarter.

HORNS, of animals, are a wonderful production, that graces their heads, the growth of which I believe to be governed by the habit of the animal's frame, and temperature of blood, similar to the nervous habit in the human frame, which hitherto baffles the faculty, as I never heard or read of a nervous system being cured. Neat cattle, and rams that carry horns, their ages are known by the rings upon them, if they have not been shaved or filed off to deceive, as jockies bishop their aged horses' teeth for the same purpose. Castrate a bull, and he is soon recognized at a distance to be an ox, by the graceful length of his horns. Deers' horns are annuals, and drops off dead ripe in May, as ripe fruit does in autumn; castrate him, and his horns will grow up cylindrical, without branches, like unto those of the roebuck, but they will never fall off any more. I had an out-lying buck, hunted in, and in leaping the park fence he crippled his haunch, and the horn on that side ever after grew crippled, but ripened and fell off as other horns; it never was more than four

or five inches long; the other horn perfect and twenty inches long.

HOUGH-land; or hams of land lying between rivers and higher ground; in Scotland, called carse; in Yorkshire, ings.

HOUTBOYS; any kind of park, chace, or forest trees, bearing fruit or seed, eatable by man or deer.

HOVEN cattle, by eating green clover: if you have not a tube made hollow and flexible for the purpose of putting down their throats, stick the animal in the paunch with a penknife, fearlessly, on the near side in the flank, close to the thigh; if no relief, stick the knife in again: I have seen it done: the cow was laid down, and the green food and wind spouted out ten feet high; give a glisten immediately, of four, five, or six quarts of warm gruel; the knife holes in skin and paunch will heal of themselves. I once lost a sheep hoven by eating too much of young succulent turnip tops, just run up in spring; my wise shepherd said it was poisoned; I had it opened, and found it died for want of the flexible tube; its paunch was crammed with turnip tops.

HYDROGEN gas, commonly called inflammable air, destructive air, &c.

IMPROVEMENTS should be judiciously and deliberately arranged, and vigorously executed in the most substantial workmanlike manner, or they will soon want repairs or alterations.

INCLOSURES. Surveyors, in dividing and allotting, drive down stakes where the fences are to be, and the commissioners point out to the individual owners, what sides they are to fence; if they fence with pales, rails, or wall, they set its outside to the line of stakes, and the business is settled for ever; but if a hedge is to be planted, he begins by throwing up a bank for the hedge, and makes the outside of ditch in the line of stakes. Suppose a three feet ditch, the slope of bank will be half width of ditch, and the plants must have six inches from face of bank, that they may not be injured by dry or frosty weather; consequently there is five feet of land the whole length of fence, fenced out; and so little are people in the habit of thinking and acting rationally, that if a tree happens to grow up out of side of bank, the owner of adjoining field will claim it; when the hedge is worn out by age, and a wall is to be substituted, his neighbours hath a jealous eye upon him, to see he does not encroach behind the line of old fence; at same time he hath a right to place his wall to outside of ditch. If he sells or exchanges, there is generally the nearest schoolmaster called

in to measure, that is ready at figures, but ignorant as to taking his dimensions; only measuring to line of fence, so that the vendor loses his strip of five feet wide. Whatever the distance is from line of fence to outside of ditch, that is the property of he or they the fence belongs to; and as above observed, so little are people accustomed to think well, that I have known a professional surveyor dispute the validity of this reasoning, so as to attack a clearer headed surveyor than himself, in the public papers, for being of a contrary opinion. (See my Evelyn's Silva.)

INDIGENOUS plants, are natives of the soil, whether trees, shrubs, or grassy herbage, where they grow spontaneously.

INSECTS, are bred in manure in general, and not by winters, nor brought by east winds. Manure raw, plowed in, in the autumn, for wheat, generally do the mischief; the same manure, properly prepared, and laid on as a spring dressing, would be infinitely better; slugs, worms, millipedes, &c. are thus carried in raw manure, as if on purpose to form a proper nidus for the eggs, spawn, or larvae, to hatch them in; mud from bottoms of rivers or ponds, breeds most of the flies. (See Manure.)

INTERRUPTED perspiration blinded a three year old thorough bred blood filly; that I put into the hands of a person to break, which he did most effectually. He was a breeder and dealer in forest-kind of horses; what they term driving the forest is, to drive these wild animals to a barn to be haltered and housed, in November. This fine fleet filly being just backed, was the very thing to ride upon after forest colts. I need not to say more, the imagination will draw and colour the rest.

IRON. One cube foot weighs four hundred and seventy-seven pounds; and four feet, seven tenths, one ton.

One foot of cast iron weighs four hundred and sixty-four pounds; and four feet, eighty two tenths, one ton.

JOISTING cattle; agistment or gise ground.

JOINT oil, sinovia, alias gouty oil; most abundant in the animal frame at prime of life, as is proved by its oozing more abundantly out of the hough of young bullocks in shambles, than old ones; query—is not this sinovia what we call nerve; it seems to me as if it presided in the bones, marrow, and sinews, pervading the whole frame through the spine or vertebre to the brain, and skull, or how could a fracture in the hip affect the buck's horn. (See Horn.)

KEEP of stock, per acre, extracted from the Lincolnshire agricultural report, by the Secretary to the Board of Agriculture. He cites twenty-four places, formed into a table, how they stock summer and winter; the highest at Alderschurch, summering seven and a half sheep and two bullocks, and winters three sheep per acre; sheeep twenty-four pound a quarter, and bullocks seventy-five stone each of fourteen pound. (See Grazing.)

KHOL rabie, or turnip rooted cabbage, is a native of Lapland and Hungary; I grewed it once, but considered it not so good as Swedish turnip.

KAIL, Scotch, or green curled brocoli, I consider far superior to the thousand leaved cabbage, as it is absurdly termed; the fact is, it is a mule between Brussels sprouts and purple rape. The Brussels sprouts produces more spring feed than any other of the Brassica family, but is not so hardy as the borecole, alias Scotch kail.

KNITTING of rams. Get a strong small well waxed string, with a short stick tied at each end to pull by; put the string round the neck of the cod, with a single knot draw as tight as you can, whilst your assistant pulls the contrary way;

then put the string round again with another knot, and pull again; in eight or ten days cut the cod of half an inch below the string. The operation may be performed in November or March. (See Castrating.)

KYVER, or stook, alias a ten sheaf hattaack of corn in the field.

LACTOMETER milk measures, are glass tubes open at top, and set upright in a frame; each tube exactly ten inches deep inside, and nearly an inch wide; have each cow's name opposite a glass, and at time of milking, save a little of each cow's milk separate, and when cool enough, strain or cile it, and fill the tubes full with the milk, according to names, and in thirty-six hours, with a rule divided into inches and tenths, measure from top of milk to top of cream; suppose it two inches, proves that cow's milk yields 20 per cent. of cream: thus you prove which cow gives the richest milk, if they calved nearly at same time, for it will vary from time of calving to going dry from 10 to 30 per cent.; the less they give, the richer the milk. N. B. there will be always a deficiency between top of glass and top of cream of from one to two tenths; if the tubes are ever so nicely filled, that loss is caloric or animal heat, gone off in vapour.

The following is an average of cream by the

lactometers, taken first Monday in every month, for one year:—

January 16½ | Feb. 16 | March 17½ | April 16½
 May 16½ | June 13 | July 14 | Aug. 16½
 Sept. 18 | Oct. 16 | Nov. 20½ | Dec. 17½

Any dealers in flint glass will get the glasses made by order.

LAIRE; where a deer haunts or lies by day.

LAMBS have two broad teeth in front of lower jaw; males are termed tup lambs, ram lambs, wether lambs, and in Dorsetshire, pur lamba. Females, or ewe lamb, or chilver lamb, and gimmer lamb; all are lambs until a year old, when their two broad teeth falls out and are succeeded by two smaller, before sheartime, and are properly termed two tooth, ewe tag, pug theave gimmers, or one-shear ewe hog. The first shearing of lamb's wool is not reckoned; males are two teeth wethers, tags or pugs, alias one-shear wether hogs or dummonds, until they are two years old, when two more teeth rises, viz. one on each side of the two first. Then the proper term is four tooth ewe, or theive, and at next shearing, a two shear ewe hog, or wether hog. At three years old two more teeth rises, and are termed six tooth ewes and wethers; at four years old two more teeth arises, and as the teeth are then complete, they are termed full

mouthed. It is not profitable to keep ewes after seven years old, as their teeth fails, and are termed broken mouthed ewes, crocks, and crones. Ewes may have the ram at eighteen months old; but the ram should be a year older, that is four tooth ram. Cutting lambs at a fortnight old, and the earliest lambs in England, is Dorsetshire, and comes about Christmas, for stores, and their time of cutting is between first April and May-day, (see Castrating.)

LAMB. House lamb for London, the farmers twenty miles round London, buys (at Wayhill fair, in Hampshire, 11th October,) the Dorset and Somersetshire ewes in lamb for the purpose, and when lammed down, the lambs are put into a barn loose, and kept well bedded with clean dry straw, and shut up in darkness; grains, pollard, and bean meal are given, with turnips and hay, as much as the ewes can eat; they are admitted every three hours into the barn. In 1813, 1814, the price in Smithfield was a guinea a quarter. I know a farm in Bucks that was then rented at two hundred guineas, and the farmer raised the whole year rent by fifty lambs; the lambs are sent a few at a time, as they get fat, weekly, by a carrier, who collects them in a waggon, or carravan, at per head.

LAND-MEASURE: sixty-nine yards and fif-

ty-eight parts, that is, sixty-nine yards, one foot eight inches, is the side of a square acre statute, and what is called a day work in the midland counties, is equal to the west Sussex seed acre, namely, one hundred and seven rod, perch, or pole, statute, so that three of these is two acres statute. Dorsetshire pole, or goad, is fifteen feet and one inch,—one hundred and sixty to the acre; so that six of their acres is equal to five statute, within two rod. Statute rod sixteen feet six inches; Woodland rod, eighteen feet; forest and Lancashire rod, twenty-one feet; Shropshire rod, twenty-four feet.

... **LAND** Job's motto :—not a furrow of my land shall have cause to complain.—Job, xxxi. 38. Barren land made fruitful, and vice versa.—Isaiah xxix. 17—xxxii. 15.—li. 3.—to the industrious farmer.

. **LAYING** down land for permanent grass: by no means admit of red clover, or trefoil, as they are not perennials: they grow too gross for the better grasses, (see Grass seeds and Barley.) Marle grass, white clover, hop, or yellow clover, or trefoil procumbens, are good with meadow hay seeds, and the perannual ryegrass, but when laying down merely as a green, or rotation crop for two or three years, then sow ryegrass, broad or red clover, and trefoil, and no white clover nor marley grass.

LARVAE, spawn, or eggs of insects, (see Insects.)

LEASES are of little value to landlord, when tenants are well chosen, but gives confidence to the tenant in laying out his money, in case of death or alienation; I have given a long list of restrictions abridged, (see Covenants,) so as to suit most inland arable farms: a few judiciously chosen, and well adapted to the farm, is better than many, which becomes puzzling and vexatious. A good tenant is bound by his superior judgment, pride, and honour; nor will any parchment and red tape fetters bind a designing knave. Interest is the most binding covenant, therefore let the tenant have a living, and protect the farm by covenants for the last three years, in case of not renewing of lease, which should be done, if possible, three years before the old one expires, and thus the tenant is saved the trouble of preparing the farm for landlord. Country attornies don't like these running leases, they had rather see the landlord grant two pair of leases in one year. After the tenant hath covenanted upon his lease satisfactorily to himself, any money the landlord may lay out by a written request of tenant, he should pay five per cent for such money laid out, during the term of the lease; this will check unnecessary applications, in all billy and downland districts, where no

manure can be purchased, the tenant should be bound to keep a specific number of sheep, for every fifty acres the farm contains: this would be a stimulus to grow green crops for mutton, and fewer corn crops; beef and mutton is got to market cheaper than culmiferous crops, and when fixing the rent, particular attention should be paid to the distance of markets and manure, (as the new tenant is to have all the straw and chaff of last year crop, he must pay for thrashing) Lawrence's Modern Land Steward.

Mr. Lawrence must be understood to mean wheat straw only.

LENTIL, *ervium solonience*, spring tare or vetch. Two and half bushel to be sown per acre, if for soiling; but if for hay, half the quantity, in twelve inch drills, to be once flat hoed. When for hay, cut as soon as the first pods are full length; ten to fourteen ton, green, will produce from two and half to three ton of dry hay, worth more than clover hay. I grewed the best crop, in year 1807, that I ever saw; they were estimated at eight quarters per acre, but the season for seed tares by wet and mildew, was so unfavourable, they fell forty bushel short, but the price of seed helped to make up, as I sold the whole at a guinea a bushel: thirty to forty bushels is good crops; one cube inch contained two hundred and ten seeds, weight per

bushel sixty-two and half pounds. A horse or cow will eat five times the weight of green food, more than they can of the very best dry hay.

LEERE, the place where deer lie to dry themselves.

LESSES, the ordure of a boar, excrement.

LEGUMENOUS crops, are beans, pease, and tares; clovers are classed with artificial grasses, or green crops; saintfoin and lucern are not pulse, but may be classed legumes; they are by no means grasses.

LIME. Four dozen or forty-eight bushel is a load with farmers, in some places; but there is no place I know of where lime is sold by such a bushel as Guildhall bushel. The lime burner's measures are willow baskets, and as to size they agree pretty well: twenty-five of these wicker measures, called bushels, are called an hundred at London, viz. an hundred pecks, and will cube twenty-seven to thirty feet; coals and chalk being cheap at Warminster, near Bath, a bushel of their lime, for 4d., weighed seventy pound. A bushel of Depford or London white or soft chalk lime, weight thirty-seven pound, for 6d. Grey chalk lime, viz. hard chalk, from Surry hills, weighs fifty-six pound a bushel, for one

shilling. Plymouth rock lime, eighty-six pound a bushel, for eighteen-pence. Kent ragstone lime, ninety-four pound a bushel, eighteen pence; barrow lime, from Leicestershire, seventy-four pound a bushel, for thirty-pence; all delivered at London wharfs 1803—time of burning from twenty to sixty hours, according to hardness or weight. Crossby's Builder's Price book, for 1808, tells us one bushel of grey chalk lime, with three bushel of sand, makes good mortar; but he flippantly adds, one and half lime to two and half sand, makes better; but he don't say how or why; I know it will be better or easier to work, and worse for binding or resisting the weather. He says two limes to one sand of barrow or Leicester lime; this seems to me an error, as the barrow lime is allowed to be the strongest in England. He quotes Vitruvius's allowing five sands to one lime, and doubts its correctness; now, I believe it perfectly correct. Vitruvius was an Italian, and their limestone is marble, and that he proportioned his sand to the bulk of the lime, as measured hot at the kiln. Six bushel hot will swell to ten when slacked and then Vitruvius, five to one is reduced to three and one, and that is what Plymouth rock and our Airdale lime will admit of, if the sand be sharp and clean. I had two ornamental cottages built, and in treating with the mason, gave him his own price, on condition he used three sands

to one lime; he deceived me, and two winters hath raked the joints of wall clean on west end. My house was built in the sixteenth century, with window muntans three feet high, and one foot from each other, glazed in lead, six windows to a room. Locke, in describing ancient mansions, says large windows that interrupt the light, and passages that lead to nothing. My rooms were dark, and wet beat in at sides of windows; I had the lead and sides painted; paint peeled from the plaster on sides, in winter, and wet got in. I got a glazier to cut two squares for each opening, eighteen inches by twelve, and had some clean sharp grit sand, as washed from roads, sifted through a sieve, made of fly wire, whose meashes was twelve in a lineal inch, or 144 in a square inch. My lime was effete, but being twelve miles from lime kilns, I could not wait for caustic lime; the stale lime never had been wetted, being in an open shed, it was only air slacked, and dry enough to go through the above sieve. I then put three spadeful of sand to one of lime, alternately, until I had a quantity sufficient, and had it well mixed, and then made into mortar, without hair, and with this the glazier fixed his glass instead of putty. The upper square overleapt the lower three quarters of an inch, to keep out the wet. When the mortar was dry, I had it whitewashed, not with whiting, but lime and water; it hath stood three winters, and is com-

pletely waterproof; and as hard as a stone. Again, last August, I took down a bad brick wall to re-build, and employed my own man to clean the bricks, and mix the mortar, under my directions. This winter, 1826, hath been a severe one, yet the joints of wall exhibit all the polish of trowel, and trowel marks. Four courses at top were laid in mortar, made by the bricklayer, and is all scaled out in places an inch deep; this proves that a deficiency in quantity or quality of sand will not make good mortar; it is more properly a calcareous marle, fit only for land; it never can bind; hence it is we so frequently meet with old foundations, cemented, so as when broke, the stones and flints break sooner than tear out of the mortar, which was made poor by a great quantity of sand being mixed, thinking it extravagant to bury good mortar under ground; this same reasoning will apply to liming of land; chalk, instead of chalk lime, is better for chalky land, in the west of Sussex. Caustic or hot quick lime, seldom do any good upon calcareous soils, for the first moisture it receives, it immediately combines with the earths and sands; what I term calcareous soils are not only all the thin lands in chalk districts, but all thin lands in limestone districts; as Oxfordshire, Gloucestershire, Lincoln heath, and in Yorkshire, from Doncaster to Wetherby, and many thousand acres of upland hill district

in Yorkshire, where the well-known paving stone is got. It may be objected to the Yorkshire mores being calcareous, as the stone cannot be calcined into lime; but it is well known that all the scaly stuff from coal mines, and bad stone, by delvers called baring stuff, when exposed to weather, becomes earth by decomposition, and sooner than limestone, therefore ought to be limed as such; not only effete, by being air slacked, but completely saturated with water.

Mr. Law's survey of Nottinghamshire, writes of six hundred and forty bushels being laid on one acre of clay land, and but little benefitted; and near Pontefract twelve hundred bushels effete lime; half the quantity laid upon the strongest clays known, would reduce it to a species of clay marle, were it laid on in the autumn, in heaps, of about three bushels, and there lie till spring, and when dry enough, not to stick to the shovel; spread it; it will never unite with any soil after, but work with it exactly as shell marle: some of my neighbours lay on sixty load per acre; our loads are horse loads, in sacks, weight two hundred and ten pound, or eighty-four pound per bushel, London coal bushel, up heaped, for which we pay one shilling and sixpence, delivered in the field, for each load of two and a half bushels; fifteen bushels, or six loads, one cube yard; six bushel, hot at kiln, will swell to ten bushel, in slacking with sixteen gallons of water.

Our Airdale limestone is dove coloured marble, exactly same as Plymouth rock, that is brought to London, as ballast to shipping. **Welch and English lime**, burnt at Barnstable, is same sort, and sells at kiln for eight-pence a bushel. About **Shinnat**, in Shropshire, they lime for wheat, two waggon loads, of forty bushels each, per acre. I have seen a limestone quarry, of thin laminae, bedded stratified, and coal black, exactly like Barrow limestone, Leicestershire: it is situated between **Fordhill Castle** and **Berwick-upon-Tweed**.

LINSEED; one bushel gives six quarts of oil; (see **Flax**.)

LITTER, of foxes, cubs, and dog's puppies.

LOAM, or brick earth: one cube foot, dug up from a foot path, will measure nearly two feet of loose loam, and weigh one hundred and thirty-five pounds.

LEAD: one cube foot will weigh 770½ pound, two feet and nine tenths, one ton.

LODGE: a buck goes to lodge, when he goes to rest.

LUCERN, medicago sativa: one bushel of

seed weighed sixty-one pound, and one cubic inch of it contained five thousand seeds. A good crop will produce two quarters of seed. We are gravely told that it will not answer any where but upon good loams. I sowed an acre that had been a garden twenty years, of as good ~~hale~~ coloured loam, of ten feet depth, incumbent upon chalk, as is to be found, but it did not answer my expectations; in third year I harrowed it with drag harrows, &c. four horses, as deep as the length of harrow tines, and sowed it with fescue, foxtail, tall oat grass, cooksfoot, and timothy grass seeds, of my own raising, sown in April; the lucern was mown young for horses, to prevent it hurting the grasses, and the year after all was mown together, and the acre produced above four tons of dry hay; next year, three waggon loads, not weighed; year after, two waggon load, and after that it was very little better than the meadow it was opened to, which used to produce one and half waggon-load per acre. Lucern sown broadcast requires a gallon of seed, eight pounds. I sowed an acre of sandy marley gravel, on second of April, with three pound of seed, in drills, one foot apart, and kept the ground clean all summer, and at fifteen months old, second of June, it was in bloom, and mown; produced five ton green, and one and a half ton dry; second cut in eight weeks, in bloom twenty-seventh July, produced six ton;

eight hundred and sixty-four pound, which made thirty-eight hundred and sixty-four pound of dry hay; third crop, six weeks' growth, with very little bloom, cut tenth September, produced five hundred and eighty pound, all long weight, of one hundred and twelve pound;—total green, thirteen ton, fourteen hundred, one quarter, and four pound; the last cut was given to horses, green; it was gritty, being splashed with rain, owing to drills being twelve instead of nine inches apart; in making it into hay, if weather is fine, the day after mowing, turn the swathes; next day cock them as oats or barley; next day make cocks eight or ten on an acre, and let them stand a week; thus the leaves and bloom are preserved, and stems dried, when stacked top up with meadow hay to press it down, will cause it to heat. Will ye wranglers about substratas of chalk being calcarious soils, say these two crops of lucern grew upon a calcarious soil, because they were incumbents upon chalk? I believe both lucern and saintfoin will do as well, or better, than any grass upon the calcareous soils described under article 'Lime.' I have read of forty tons of green lucern being grown upon an acre, and of a bullock eating half their weight of green feed in twenty-four hours. I conceive this to be an error; it must mean half the beef weight, or half weight of four quarters, and then it is too much by half, (see Fattening.) One of

the Scotch bullocks when killed, weighed 138lb. a quarter, and eat first week after putting up, daily, 184lb., but not so much afterwards, nor is there any thing grown that a bullock can eat so much weight of as turnips and cabbages, green tares and green clover next; they cannot eat so much weight of lucern nor saintfoin by one quarter, nor carrots or potatoes, as of turnips, by half. There is a curious analogical affinity runs in the nature of these graminivorous animals and their food; they consume according to size, nor can they eat a greater weight of green clover, lucern, or saintfoin, in summer, than will be required to be dried into hay for same time in winter. Suppose a cow eats thirty-five pound of hay in winter, day and night, it will take five times the weight of grass; 175lb. to produce thirty-five pound, in January; and four times as much, or 140lb., to make thirty-five pound of new hay.

MADDER, *rubia tinctorum*, or dyer's madder, is a perennial, raised by seeds sown in spring, in a plot of good ground, and when grown up high enough, to be carefully thinned, with a small hand hoe to two or three inches distance; and at a year and half old, in autumn, they must be planted out in the field at nine or ten inches apart, each way; and in October, in the third year after, the roots are to be taken up: one ton

per acre is an average crop; they are used in dying scarlets; it is propagated also by succers, alias offsets. It is cut in some places on sterile calcarious soils for hay or soiling, as chicory is.

MAHOGANY. One cube foot of best close grained, will weigh sixty-six pound. A log of Honduras mahogany, seventeen feet long, five broad, and four deep, 340 cube feet, weight six ton thirteen hundred; sold by auction, at Liverpool, September, 1823, for £378, and re-sold for £525, weight per foot forty-four pounds, just one-third short of sixty-six. If weight governs the quality, as it does British timber, the buyer had a bad bargain. It is to be regretted he did not publish the result for the benefit of the public.

MALT. Best is made from barley grown upon light land, and either stacked or kept in granary to February or March; it is then steeped in a cistern sixty hours; the water is let off, for it to drain twenty-four hours; it is then spread upon a brick, stone, or mud floor, to dry and grow, called couching, eight or ten days, according to weather, care being taken the acrospire shows its nose, but not grows through the skin of the barley—the quality of malt depends on this. In this state the malt contains the greatest quantity of spirits, of which it loses

much in drying, to make it keep and render it portable. In Hertfordshire they dry all with wheat stubble; in west, with culm, alias Welch coal, which makes the beer exceedingly diuretick, until the drinker gets used to it. Many beds are thus wetted at Bath by the visitor's servants. In midland and northern counties, malt is dried with charred coal, alias coke. Expense of malt in 1818:—

	£.	s.	d.
Eighteen quarters of barley, bought at three pound,	54	0	0
Making, at 5s. per quarter,	4	10	0
Malt duty, £1 8s. per quarter,	25	4	0
Two journeys, waggon and four horses nine miles, and toll gates,	2	14	0
	<hr/>		
	£86	8	0

The average loss in weight is about one-fourth, and if it is not overgrown in couch, the increase will be one in six, or it is over-dried; if the barley was good and the maltster honest: when pale malt is required, slow fires are kept up; and for amber or brown malt the fires are brisker; brown malt should be ground and kept cool a fortnight before brewing.

MALT cooms, is the roots of barley that growed in the couching, and after drying they come off in screening—hence malt dust that is used as feed for cattle, and manure for land; it

is good to spread on wheat in January or February. If given to cows it should be made into mashes, with hot water, that causes it to swell so, that one bushel dry from the malt-kila is worth two bushels of coarse bran.

MAN. As one cube foot of man's body weighs seventy-one and half pound, any person may know his real bulk by weighing himself. He is no chicken that weighs 214lb. or three cube feet.

MANGEL-WORZEL, or root of scarcity, is of the beet family, and the cultivation exactly same as turnips. I tried them one winter with bullocks, but they did not fatten them so well as turnips that grewed in same field.

MANURE, next to good tillage, are the two main springs in the agricultural machinery; therefore, as soon as the last muck midden is made in summer, take the earliest and all opportunities of replenishing the yard ready for next winter, by collecting scrapings of roads, old ditch banks, scowerings of ditches, hayrick, furze and faggot staddles, garden rubbish, &c. spread all over the yard, and after harvest grub up all the naked stubbles with the scuffler, harrow them together, and litter the yard with it; add to these rushes and fern, where convenient, for littering cows and horses; soiling, that is

bringing crops to the home-stall, for cattle, in summer, makes them go much farther, and abundantly increases the stock of manure. The cattle at straw-yard tramples so as to destroy all insects, and their spawn as completely as fire or lime could. Other auxiliaries that will pay, may be resorted to; as pond and river mud, peat, lime, chalk, turf, &c. urine of cattle, and slops from house, in course, will not be lost sight of. In spring this must be turned up, with the accumulated muck of stables, cow-houses, and cattle at straw-yard, into couches, beds, or ranges, of eight or ten feet breadth, with as much clear space between them: this is termed casting the muck, and to save labour in tearing it up, an old hay-knife is used to cut it, at about three feet distances; thus the longest is cast into ridge in middle, short next, and then the earth at bottom is shoveled up and laid on sides and top, to finish the range: care is taken to lift or turn the whole clean to bottom. Having thus completed one midden cross the yard, a new one is begun, and so on until the whole is turned, and it will be in excellent order for turnips. I have read of laying muck middens in form, so as to keep out wet to prevent percolation. If rain really injures a muck midden in summer, then thatch them.

J. Venables, rector of Cerne Abbots, Dorset, found out perpetual motion in horticulture, by

collecting haulm leaves, and grass from his grass-plot, and buried in a trench in his garden, upon which he grewed a row of kidney-beans, to very great perfection:—this I believe, as the fermentation of leaves and grass would forward vegetation; and the lightness of leaves and grass just suited the tender succulent roots of French beans, aided by warm situation, being surrounded by chalk hills of nearly a thousand feet high. If all the leaves growing in New Forest were added to the grass grown on fifty acres of meadow, would not be enough for one acre at same time of year, yet he thinks he hath superseded the muck-midden, and upon this text he wrote a splendid sermon, which I have seen in the Horticultural Magazine, and Agricultural Journal. John Bull is that good-natured, credulous kind of animal, that he swallows any poison that is made palatable. A gentleman of my acquaintance, seeing this splendid account, had his timber-yard cleared of saw-dust and chips, corn and hay-stack yard cleaned, and pond mud all added to two years' farm-yard muck, and turned up together. I recommended a mixture of lime, hot from the kiln; the answer was, that would not be giving Mr. Venables a fair trial. The field was wheat, in the hot summer 1818, and as soon as harvest was over, it was broke up by four horses, and hard work it was, and thus it lay baking in sun until the autumn rains melted the rough

furrows. By May-day, it was brought to as good a tilth as possible; clean and free from slugs, in course, from the effects of last year's baking. The bailiff and I measured the whole of manure, one part all farm-yard manure, free from mixture, and rotten enough to cut with spade. One cube yard of this weighed one thousand, eight hundred, and sixty pound: this we considered to be the lightest part, on account of mud, and took it as an average of seven hundred and forty-one yards, carried at six hundred and five loads, gives thirty-three feet, or two thousand, two hundred, and seventy-three pounds per load, on twenty-one acres, is nearly twenty-nine load per acre;—twenty-six loads filled per day, by four men, and by them spread, after horses went to stable; one plowman drilling, rolling, &c. every day, with two horses; finished twenty-fourth June. First sown came up well, but had no better luck than the last sown, for the warmth of ground and a growing shower, with thunder, on fifth of July, hatched such myriads of slugs, that in a few days the field was cleared of every turnip plant; then lime was resorted to, but it availed nothing. For want of lime at first mixing, the slugs were hatched and carted to the field.

MARBLE: one foot weighs one hundred and sixty-nine pound;—thirteen feet, one ton, nearly.

MARES, (see Gestation, Colts, and Horses.)

MARKS, the footing of an otter.

MARKETS; newspapers are best index to markets.

MARLES, are a compound of argil, sand, &c. and are named clay or argilacious marle, sandy silicious marle, and if stony, it is erroneously termed calcarious marle. The fact is, marle is a rich kind of clay, and all other substances termed marles, are but calcarious substances, approximating to something of an argilaceous soppiness, as pipe clay, chalk, shells, &c. Real and bonafied marle is a compound of clay, sand, and gypsum; or lime coloured yellow, red, or blue, by oxyds of iron, sulphur, &c., always marbled or streaky, which indicates an affinity with calcarious matter, as shells, gypsum, and lime. These aggregates originate in limestone, whinstone, granite, and fluor, and from these marles originate all rocks; Leicestershire abounds with it,—Herefordshire,—west part of Gloucestershire, Cheshire, &c. It is the matrix of marble, limestone, gypsum, iron-stone, coal, and salt.

MARSHES, are our richest land, and where silty sand abounds they suit all seasons, but

where they are deficient of sand, it is apt to bake, so as to call forth the utmost skill of the farmer to keep the surface broken for his arable crops, (see Grazing.) The richest marshes, and earliest for horticultural crops, even earlier than Middlesex and Surry gardens, are the marshes between Baldock and Eaton Socon, on the York road, in Bedfordshire.

MEADOWS, for mowing, should never have any cattle in them after February: in elevated situations they are apt to get mossy—watering in winter, kills it—good muck from farm-yard, kills it, and where it is not convenient for earth, compost of peat and lime, or scarify and then lime. By keeping meadows rich, and cropping the arable land with green crops, much more cattle can be kept, and an increase of manure succeeds. There are two ways of injuring meadows, that is, by continually mowing before the grass seeds are ripe, and killing all the fine delicate grasses, by over-watering in winter. When grass is allowed to ripen its seed before mowing, much seed is left in the field, and the rest is returned in the manure. I have seen cow dung produce as many young grass plants as twenty, out of a lump not so large as a hen's egg.

MEASURES are various, as lineal, square, or superficial, and solid, which are amply treated

of by numerous authors, and proper distinctions made as to liquid and dry measures; what is sold by strike measure, and what by up-heaped measure. But there are so many customary measures, that when a person travels a few miles, he is quite at a loss to understand the measures he meets with, and what are called loads varies from two bushels to forty.

A load of wheat, in south, is forty bushels, Winchester measure, of eight gallons. The bushel varies in England, from eight to nine, and so on, to twenty gallons; and where they profess to buy and sell by the Winchester measure, there is such a discord in the shape, that if they held an equal quantity of water, they would not agree in their capacity if tried with dry goods: the widest will always hold a greater weight. I have measured a bushel, in Buckinghamshire, thirteen inches wide and thirteen deep. Any person buying goods by up-heap measure, and measured by the thirteen inch bushel, loses five seven quarts, in the cone on each bushel bought. And one in Sussex, fifteen and half inches wide, and ten inches and three quarters deep:—how are these variations to be reconciled. We are told by all authors on Mensuration what measures are, but none I have yet seen tells us how constructed, farther than Troy-weight, which stands thus:—grains of wheat, when full ripe in ear, in the harvest field, being picked out of middle of

best ears, 24 grains was termed a pennyweight, and 20 pennyweights, one ounce, or 480 grains; 12 ounces, one pound, or 5760 grains, one pint, Wine measure; 8 pints of 28 inches, and 875 parts one gallon, of 231 inches. Thus wine-measure was established.—42 gallons is one tierce of spirits; 84 a puncheon; 63 gallons, one hogshead; 2 hogsheads, one pipe; 2 pipes, one ton.

APOTHECARIES' WEIGHT.—20 grains, one scruple; 3 scruples, one drachm; 8 drachms, one ounce; 12 ounces, one pound, or pint, of 5760 grains, same as pint Troy; but the pint of corn did not correspond with the pint of water, or wine, in weight, so that the bushel was invented and sanctioned by government, at Winchester, hence its name. It was proportioned by a first rate arithmetician; 18 $\frac{1}{2}$ inches wide, inside; area, 208 inches, 8 parts, or one gallon, and 8 inches deep, and each inch, or gallon, to contain 8 pints, or pounds;—number of pints to the gallon as per Troy-measure, which gives 200 of the above grains to an inch, and 33 inches and six tenths to a pint, gives 6720 grains to the pint, of Dry, or Corn-measure;—
2 pints, one quart; 2 quarts, one pottle; 2 pottles, one gallon; 2 gallons, one peck; 4 pecks, one bushel; 4 bushels, one sack, barrel, or comb; 2 combs, one quarter; 5 quarters, one load, or

wey; 2 weys, one last; (see Weights, under letter W.)

BEER MEASURE is 282 inches to the gallon of 8 pints, each pint $35\frac{1}{4}$ inches or 7050 grains; 2 pints, 1 quart; 4 quarts, 1 gallon; $4\frac{1}{4}$ gallons, 1 pin; 8 gallons, 1 bushel or firkin of ale, soap, or herrings; 9 gallons, 1 firkin of beer; 2 firkins, 1 kilderkin; 2 kilderkins, 1 barrel of 36 gallons; 54 gallons, 1 hogshead; 2 hogsheads, 1 pipe or butt; 2 butts, 1 tun.

Government very wisely passed an act, in the year 1824, that was acted upon 1st of January, 1826, which consolidates all measures into one imperial standard bushel, by which coals, corn, spirits, wine, oil, &c. are to be measured: the bushel to be 19 $\frac{1}{4}$ inches diameter, outside measure; inside diameter always to exceed twice the depth; outside to be the base of the cone for goods sold by up-heap measure, and the cone never to be less in height than three-fourths of the depth, (three such heap bushels to be a sack) and to hold 80lb. of distilled water, or 82 $\frac{1}{2}$ lb. of common water.—81lb. is nearer to truth.

THE FOLLOWING ARE THE

MEASURES OF LENGTH, CAPACITY, WEIGHT, &c. AS USED IN THE UNITED STATES OF AMERICA, IN 1824.

IMPERIAL.	Outside diameter inches.	Inside diameter inches.	Area in inches and parts.	Depth in inches and parts.	Contents in inches and parts.	Cone or up-heap on top.
Bushel,	19½	18,789	277,274	8,0	2218,192	3 gallons.
Half bushel, . .	15½	14½	176,715	6,27	1109	1,5 do.
Peck,	12	11½	104,869	5,3	554,5	3 quarts.
Gallon,	9½	9	63,62	4,35	277½	3 pints.
Half gallon, . .	7½	7½	41,4825	3,3	138,525	1,5 do.
Quart,	6½	5½	25,967	2,65	69,2625	0,75
Pint,	5	4½	15,9	2,11	34,63125	0,375

Height of cone is taken at half the diameter; and rises to an angle of 45°, or what a carpenter would call a square pitch roof; difference between strike measure and heap is as 8 is to 11—thus proved, a bushel of road sand, strike measure, weighed 102lb., it took three gallons exactly to up-heap, and then weighed 140½ pound; but to prevent cavilling, the act allows three-fourths of depth for the height of cone, which is sadly against poor people in great towns, who buy coals, &c. by small quantities, for instance (pint diameter is 5; half is 2½, and ¾ of depth, will be 1,61 only, instead of 2½ inch rise of cone).

LONG MEASURE.—Three barleycorns, one inch; twelve inches, one foot; three feet, one yard; five yards and a half, one rod, perch or pole; forty poles, 220 yards or one furlong; eight fur-

longs, one mile or 1760 yards or 5280 feet; three miles, one league; $69\frac{1}{2}$ miles, one degree.

CLOTH MEASURE.— $2\frac{1}{2}$ inches, one nail; four nails, one quarter; three quarters, one Flemish ell; four quarters, one yard; five quarters, one English ell; six quarters, one French ell of 34 inches oly.

Roman and Italian measures, originally Grecian, in English feet, inches, and parts. The following lineal measures are stated as used in Italy, &c. :—

	Feet	In	Pts.
Roman degetus is	0	0	725
$1\frac{1}{2}$ degetus one Roman inch	0	0	967
Palmas minor, three do. inches	0	2	991
Four palmas minors, one do. foot	0	11	604
$1\frac{1}{2}$ foot one palmepes	1	2	502
$1\frac{1}{2}$ palmepes, one cubitus	1	5	408
$1\frac{1}{2}$ cubitus, one gradus	2	5	01
Two gradus, one pace, 5 Roman feet	4	10	02
125 paces, one stadium, 625 do.	604	1	992
8 stadium, one milleare, 5000 do.	4833	0	

Paris foot-royal, 1,068 English; Rhinland or Leyden foot is as 1,083 is to 1,000 English, and Leyden perch, of twelve feet, is equal to 12,396 feet English.

French toise 6 French feet, 6,408 English—fathom 6.

1.	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000
11	121	1331
12	144	1728
13	169	1897
14	196	2744

This table shews power of combining numbers by multiplication. First column is the root or first power; second column is the square or second power; third column is the cube or third power; (the 12th root is a foot lineal measure, the square of which is a foot superficial, and the third power gives a cube foot.) An English acre of land is 4840 square yards; extract the square root therefrom, gives 69½ yards for the side of a square acre. Scotch acre is 6150 square yards. Irish acre is 7840 square yards. Jugerum or Roman acre, 26,912 feet or 2,990 English square yards. The conciseness of this work does not admit of entering farther into Mensuration, than sketching out a few outlines; any school-boy can work the figures, but the art of taking the dimensions, and fairly stating them for working, can only be learnt by practice, by

which the bulk and weight of any thing may be ascertained, either animate or inanimate. Nature is so exceedingly regular, that most of her productions may be reduced to the rules of Mensuration: by simply taking length and girt, a well-grown man, tall or short, when seated, take his height from the seat to top of ear; that length will girt him round the breast, close under the arms; if it will not, he is too fat; if it overwraps, he is too thin. The same rule holds good in beasts, by the same mode of measuring, (see Tables of Cattle weighed.) I often regret, on reading newspaper accounts of extraordinary animals, the awkward manner their dimensions are taken, as from nose to rump, or tail end. What can the face or tail have to do with length? nor did I ever see any account that girt in right place except Mr. Renton's Grazier's Ready Reckoner, and he does not take his lengths so as a painter could understand. The rule holds good for lions, tigers, dogs, hogs, horses, deer, sheep, and neat cattle.

MEDICAGO, sativa, (see Lucern.)

MELOLANTHUS, or dors, alias black clocks, alias black beetles; are very troublesome in London bakehouses.

MEUED, or disarmed; when deer hath shed their horns.

MEW, or moult, shedding of feathers; shedding, dropping, or scaling of deers' horns; begins 1st May—oldest first falls.

MILK, in winter, 2d. a quart, wine measure, for new; and for skimmed, 1d. Schoos farm, near Cockermouth, Cumberland. (See Dairy, and 24th vol. of Arts, Manufactures, and Commerce.) I have read of Teeswater cows giving thirty-six quarts per day, and milk sold at 4d. a quart. Mr. Curwen says seven quarts of stripings, gave a pound of butter; and twenty quarts will hardly give a pound when cows are fed with grains. New milk is sold at Oldfield for three-halfpence a quart, beer measure.

MILDEW cannot be guarded against, as it is invariably brought on by cold, as interrupted perspiration of animals.

MEPHITIC air, causes blights; sometimes it rises out of the ground in uncertain local patches, but mostly it is occasioned by bright gleams of sun acting upon bright light clouds, acting as a lens or burning glass.

MOLES are very fond of cockchafer grub, and

never injure the farmer so much by his hills as he doth good by draining, and devouring worms and insects.

MOOR: fenny, marshy, peaty, boggy ground. The peat thereof is composed of very different plants to those of mountain bogs, and the waters are resorted to by swans, geese, ducks, teal, wigeon, dabchicks, didops, baldcoots, and moorhens.

MORES are quite the reverse of moor, as hill is to vale; it hath its peculiar kind of game also; and the bogs are composed of very different aquatics to the reeds, bulrushes, and sedgy moors. They consist in general of a species of moss, silk ling, and more grasses, producing peat also: and many of the Yorkshire mores are known by name of mosses, as Hoyland on moss, Holm moss, &c. We have many mores in Yorkshire, as Pennistone more, Mirfield more, Heartshead more, Linley more, Wibsey more, Rumbold more, and many others. In Devonshire, is Dartmore, eighty thousand acres, and part of it is 1,500 feet above sea level: joining this, on north east, is Exmore, forty thousand acres; it extends into Somersetshire; at the foot of this more is perhaps one or two hundred thousand acres of moor land, peat or marsh, not elevated twenty feet above sea level. Whoever saw sweet

gale growing on mores? Whoever saw heath growing in moors?

MOSS, common, *Polytrichum Commune*; not any thing I know of so destructive to it as lime, effete.

MORTAR, for building, is as interesting a subject as any one I know. Quick lime and sharp clean sand, duly proportioned, never fails of making good binding mortar: dirty earthy sand never should be used. River sand, road drift sand, and scrapings of roads, in the purlieus of London, makes excellent mortar when it hath lain long enough for all the vegetable matter to decompose, and if washed in proper sieves, it makes the finest of stucco. To mix mortar long before it is used, called sowering, weakens it, and renders it fit only for plaster; it being more elastic, and not so liable to crack in ceilings.

MOWING, for hay, in early seasons, commences about 1st of June in south, and varies according to soil and situation, so that time of mowing commences on Yorkshire hills about middle of July. Prices for mowing vary from four to six shillings and sixpence per acre. Mowing aftergrass, for rowen or fog hay, same price as first cut. Mowing clover, saintfoin, or lucern, from two to three shillings. Mowing oats, or

barley, and wheat; same price as clover. Light crops of wheat should always be mown particularly where straw is wanted for thatching.

MULE, got by a horse, and out of an ass, grows to a good size, and are of various colours, resembling the horse, being black, brown, bay, or grey, but hath always the vicious temper of the ass; but the hinnus or mule got by an ass, and out of a mare pooney, always resembles the ass in size and colour, but hath the actions and temper of a horse; they are worthy of being reared for carrying coals in the more districts, also as hacks for children of the rich, and their post or errand boys.

MUM, is a fat ale, brewed from wheat and bitter herbs.

NEATS tongues, dried, weighs from two to five pounds.

NECTAR, of ancients, was wine seasoned with cloves, pepper, ginger, cinnamon, and sweetened with honey.

NEW enclosures. - (See Inclosures.)

NOTT sheep, are sheep without horns, provincially Notts. There is an excellent breed of

these about Oakhampton, on the western extremity of Dartmoor, in Devonshire. This polled breed is to the Gloucestershire, what the Tees-water sheep are to Lincolnshire breed. (See Tables of Weights.)

NUMBLES, the entrails of deer; some part of which is used with the inwards or pluck, tongue, and velvet from the horns; all together makes an excellent dish, fried or hashed.

NEST, of rabbits.

NYE, or brood of pheasants.

OATS, *avena, sativa nigra*, or black; *avena alba*, or white; and *avena muda*, or naked, with some other varieties. From three to five bushels of seed per acre, according to quality of land, produce 40 to 50 bushels per acre, is a fair average crop. The best I ever saw, was potatoe oats, bought in London, and after delivery, at ten miles distance, a bushel weighed forty-four pound, produced twenty-eight pound of meal, that made thirty-seven pound of bread; they were so short and plump, that 250 grains filled a cubic inch box;—another lot, 315 grains per inch; weight 42 pound per bushel. In hot summer of 1818, Talavera wheat bloomed fifth June; common wheat, barley, and oats, broke spatha, or came

into ear, called shooting, on eleventh June, and bloomed on fifteenth, and was ripe ninth July, in Buckinghamshire. Oats on Yorkshire hills, broke spatha, sixteenth July, bloomed twentieth to twenty-eighth, and was ripe thirtieth August; which proves fifty days difference between Bucks' chalky soil, and Yorkshire marley hills; say twenty days for soil, and thirty for climate. When clover is to succeed oats, the grass seeds should be sown when the oats are harrowed in, or the oats will smother the clover, if not sown before the oats are high enough to be rolled: when clover is to succeed barley, then let the barley be three or four inches high before sowing of clover, then roll, (see the article Barley.) I have stated above, that forty to fifty bushels as an average cut. Double, and as high as one hundred and twenty bushel per acre hath been grown, in moory fen land; and in some congenial crofts in Dorsetshire and Devonshire, every rod of land produced one bushel of oats; that is 160 bushels per acre: I wish I could state the weight of straw. Suppose the oats at the moderate weight of thirty-five pound per bushel, would be 5600 pound the acre, and straw at same weight, as it seldom happens that corn is heavier than straw that produced it. Good oats, from a calcareous soil, will produce of meal, three fifths of the corn weight; viz. one bushel at forty pound, will give twenty-four pound meal, and sixteen

pound husks. There is now in this neighbourhood a miller, who had thirty pound of meal from a bushel of oats; viz. just one load of two hundred and forty pound, from a quarter of oats. In the bad harvest of 1816, so many oats was lost, or shed in field, as to induce the farmer to let the field lie for another crop. I saw the last shock of second crop set up, on sixth August, 1817:—the same crop was advertised in “Leeds Mercury,” first September, thus Mr. Moyse, of Denby Abbey, Cambridgeshire, had eighty acres of oats, that produced sixty-four bushels per acre, weight forty-two pounds per bushel; the ground was not plowed this year, nor crop sown.

In same year, 1817, oatmeal, in Yorkshire, was two guineas per pack of 240lb. Shelled oats, alias shelling, was two guineas per pack of 304lb.

240lb. of oatmeal, from ten bushel of oats, is an extraordinary produce; good dry oats, of 42lb. per bushel, twelve bushel will produce 288lb. oatmeal; two bushel dust.

Twenty bushel of Yorkshire hill oats are allowed to be an average quantity, to produce four and half bushel of shelling, or grits of 64lb. per bushel, and they will produce twenty pecks of 12lb., or one pack of 240lb., or 18 of 14lb. = 252lb. Thirty bushels of Tartarian oats is required to make 240lb. of oatmeal. I have never been fortunate enough to be settled on rich land, to

ascertain the quantity of straw that supported extraordinary crops. In Sussex, three quarters of oats, at 38½lb. per bushel, gave 840lb., and clean straw trussed and weighed 650lb., so that chaff dust and straw wasted was 190lb., suppose straw as heavy as corn. These oats were mown from another field—straw that produced eight bushel of oats, weighed 303lb.; oats, eight bushels, at 36lb. per bushel, weighed 288lb., so that straw exceeded corn 15lb.

The following are experiments on Yorkshire oats, shorn and tied up, the sheaves were weighed; one acre produced 770 sheaves, average weight 5lb.—total3850lb.
The acre produced 37 bushels of 38lb., total 1406

Total weight of straw dust and chaff.....2444
Each bushel of oats produced 21½lb. of oatmeal, that is, four pound of meal to three of hulls, in year 1820.

In 1821, another field of oats shot into ear 15th August, and bloomed 25th, ripe 1st October: one acre produced eighteen bushels of oats, weight 35lb., and each bushel produced 18lb. oatmeal; one bushel of this shelling weighed 59lb. only; these oats lost 5lb. per bushel in kiln, so that when they were dry, the hulls were as two to five; expense of drying and grinding, one shilling and two-pence a quarter, or two shillings a pack for meal. Some millers charge one shil-

ling a pack on meal for drying, and eighteen-pence for shelling and grinding.

1822, same field oats again, and produced 440 sheaves, at 5lb. per sheaf, 2,200lb. per acre and eighteen bushel of oats, at 25lb. per bushel—450, so that the straw was nearly five times the weight of corn; they lost in drying 2½lb., which reduced them to 22½lb. per bushel, and the produce in oatmeal was 13lb., and hulls 9½lb. This is not so bad as the above Tartarian oats, that gave only eight pound per bushel; it is not wise to grind such corn, and light oats makes heavy heeled horses. In same year I had a field of barley that weighed only 30lb. per bushel; I had some ground for pigs, and when about half fat, they were all taken ill, nor could they eat or drink; I had them drenched with various things without any apparent effect, except one, and that was made precious sick with a dose of butter-milk. I ordered one to be killed; the paunch was full, and the guts had nothing in them but knobs of barley husks, so I ordered them all to be killed for pork; such crops should be used for fodder.

1824, oats, one acre, average 900 sheaves, at nearly 5lb. each; 4420lb. gave 34½ bushels, at 39lb. per bushel, or thus—

4420lbs. of straw and corn.

2985lbs. of straw thrashed.

90lbs. of chaff per acre.

1345lbs. of oats.

4420lbs. total acre.

750lbs. of oatmeal from 1345lbs.

45lbs. of mill dust.

550lbs. of mill seeds, or oat hulls, with
 ——— the loss in drying kiln.

1345lbs.

The dust 45 pounds, was three up-heaped bushels.

OILCAKE, is the refuse of lintseed, after the oil is pressed out, and is purchased to fatten cattle with, at from five to ten pound per ton; also, rape oilcake, at from four to seven pound a ton: it is also used as a manure, under the appellation of rape dust.

ORDURE, or dung of a hart; and of all other deer, fuments, or fewishing; of a fox, the billetings; of an otter, the sprints.

OVIPAROUS, bringing forth or bearing eggs.

OXGANG, twenty acres; what an ox team can till annually.

OX flie. (See Gad-flie.)

OX teams. Many able writers hath employed their pens in vindicating the working of oxen in preference to horses, and with apparent success. I employed oxen several years; bred,

worked, and fatted them; they were of the North Devon breed, harnessed as horses, except the collars being cut open at small end, and placed over the ox's neck with small end downwards. Our land was strong, and full of sharp flints. I never had an ox shod, alias cued, nor ever had one lame. They got so much credit, that at two of our tenants' request, I furnished them with ox teams; but they soon gave them up, for no other reason than they did not like them. I gave up the working of oxen also, not on account of being able to plow cheaper with horses, for that cannot be done. When a team of horses are yoked, they hold up their heads cheerfully; but to see an ox team on a hot day, foaming at mouth, for they sweat from the tongue as dogs do, and with their heads down, short necks half covered with collar, and the horns projecting above the blinders, their appearance is too humiliating, and disgusts a British farmer, besides all the biped live machinery on the whole farm gets a crawling habit, as if affected with the ague.

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dred, of air, and the azotic air forms the other seventy-three parts, which is destructive air.

PADDOCK, a small inclosure in a park; or near a house, is a croft.

PAINT, cheap. Skimmed milk and soot, or one gallon of milk, one and half pound of quick or caustic lime, just wetted, and exposed to the air in order to reduce it to powder: one pint of lintseed oil, in which dissolve a quarter of a pound of Burgundy pitch, and colour it with red or yellow ochre, clay or any other mineral colour, ditto impenetrable to water, sun or air; three parts air slacked lime, two of wood ashes, and one of fine sand, all sifted and mixed with linseed oil; lay on two coats as a primer, and a third as thick as can be used, with a brush.

PANTERS, or toils to take deer in.

PARING and burning; denshering, alias Devonshireing. Paring may be done for twenty-five shillings, and the burning at fifteen shillings per acre. Care should be taken only to char the turf, so as to kill the grass roots, seeds of weeds, wireworm, &c., but never reduce the turf to ashes, for that reduces the staple of the ground, and the most valuable part too. A part of the marsh near Lumbard's wall, west of Wool-

wich, in Kent, was pared and burnt, sometimes it was over-burnt, not to ashes, but to pot or tile metal, and is to this day the worst of all the marsh between Greenwich and Woolwich. Charing and then plowed in, is most assuredly the best plan, except burning with quick lime and turf wetted, as is done with peat in Bedfordshire and Berkshire, also on Yorkshire mores.

PARSLEY, is excellent for sheep, sown with clovers and trefoil for temporary pastures only, as it is a biennial.

PARSNIPS. Eight pound of seed per acre, in twelve inch drills, sown in September; and if once cleaned in May, they will keep every thing down afterwards; twenty ton to an acre. I have grown 525 bushels of fifty pound each on an acre, and will fat more stock than forty ton of turnips.

PASTURES require manuring, as well as meadows, in high exposed situations, and if neglected they get mossy. I limed a pasture with fifty load per acre, each load weighed two hundred and ten pound; delivered in the field at eighteen-pence; in September each load was slacked with eight gallons of water, and suffered to lie in heaps until spring, and then spread at one penny per heap. Bishop Watson says two

fifths of limestone is fixed air and carbonic acid gas, which is expelled by burning, and then becomes a pure alkaline; add to this the same weight of water the stone lost in burning, and the whole is reduced to powder. Suppose one gallon out of the above eight to be lost on the ground, and each gallon weigh ten pound, exactly corroborates Dr. Watson's statement. Two pecks hot, will swell to five, in slacking with water; but not to four, when air slacked. This field lies five feet above a road, that is adjoining to its side, and where the water runs off by heavy rains, it carries off so much essence of lime, as to keep the wall clean, and free from moss, also. (See Lime; and Mortar.)

PEASE, *arvensis*, or field pea, of various shapes and colours. The Marlborough round grey pea, I consider as the best: a cubic inch of them, 67; and a bushel weighed 63 pound: three bushel per acre, sown broad cast, and one and a half bushel, if drilled in twelve inch drills, in poor land; and in rich land, eighteen inch drills, which is infinitely preferable to sowing broad cast, as the interspaces may be hoed, so as to give the pease the advantage of weeds. Twenty-eight bushels, a fair average crop. No pea beside the grey, do well on strong land: the difference in price, between grey pea and white, is as two is to three. The white, or blue boiling

pound husks. There is now in this neighbourhood a miller, who had thirty pound of meal from a bushel of oats; viz. just one load of two hundred and forty pound, from a quarter of oats. In the bad harvest of 1816, so many oats was lost, or shed in field, as to induce the farmer to let the field lie for another crop. I saw the last shock of second crop set up, on sixth August, 1817:—the same crop was advertised in “Leeds Mercury,” first September, thus Mr. Moyse, of Derby Abbey, Cambridgeshire, had eighty acres of oats, that produced sixty-four bushels per acre, weight forty-two pounds per bushel; the ground was not plowed this year, nor crop sown.

In same year, 1817, oatmeal, in Yorkshire, was two guineas per pack of 240lb. Shelled oats, alias shelling, was two guineas per pack of 304lb.

240lb. of oatmeal, from ten bushel of oats, is an extraordinary produce; good dry oats, of 42lb. per bushel, twelve bushel will produce 288lb. oatmeal; two bushel dust.

Twenty bushel of Yorkshire hill oats are allowed to be an average quantity, to produce four and half bushel of shelling, or grits of 64lb. per bushel, and they will produce twenty pecks of 12lb., or one pack of 240lb., or 18 of 14lb., = 252lb. Thirty bushels of Tartarian oats is required to make 240lb. of oatmeal. I have never been fortunate enough to be settled on rich land, to

never any peat or peat moss; peat rotten, peat ashes, peat decomposed by stratifying with dung or lime, are all good manure, particularly as a top dressing for wheat in frosty weather, or harrowed in with Lent corn—pelt, (see Polled.)

PHLOGISTICATED air, or mephitic air, is azotic or lifeless air; a candle cannot burn in it, nor can an animal live in it. It is well known to colliers in Yorkshire by the name of candle damp.

RHOSPHORUS is allowed to be a component part of animal, as well as vegetable substances.

PICKLING. (See Vinegar.)

PIGS. There are various breeds; Berkshire breed a sandy colour, with black spots; Gloucestershire breed are white, long, and lankey; Hampshire breed are white, but like their sheep, very coarse. Herefordshire breed are large; so is the Shropshire breed. Handsomest and best breed is bred about Billingshurst and Leonard's forest, in Sussex; some are black, some white, and others spotted black and white. I once bought a litter of this breed, and another litter that was recommended, both litters eight weeks old; they were turned into stubbles in August, and as food got scarce in stubbles, they found their way into

ling a pack on meal for drying, and eighteen-pence for shelling and grinding.

1822, same field oats again, and produced 440 sheaves, at 5lb. per sheaf, 2,200lb. per acre and eighteen bushel of oats, at 25lb. per bushel—450, so that the straw was nearly five times the weight of corn; they lost in drying 2½lb., which reduced them to 22½lb. per bushel, and the produce in oatmeal was 13lb., and hulls 9½lb. This is not so bad as the above Tartarian oats, that gave only eight pound per bushel; it is not wise to grind such corn, and light oats makes heavy heeled horses. In same year I had a field of barley that weighed only 30lb. per bushel; I had some ground for pigs, and when about half fat, they were all taken ill, nor could they eat or drink; I had them drenched with various things without any apparent effect, except one, and that was made precious sick with a dose of butter-milk. I ordered one to be killed; the paunch was full, and the guts had nothing in them but knobs of barley husks, so I ordered them all to be killed for pork; such crops should be used for fodder.

1824, oats, one acre, average 900 sheaves, at nearly 5lb. each; 4420lb. gave 34½ bushels, at 39lb. per bushel, or thus—

4420lbs. of straw and corn.

2985lbs. of straw thrashed.

90lbs. of chaff per acre.

1345lbs. of oats.

4420lbs. total acre.

Age—Months.	Days.	Length in inches.	Girth in inches.	Live weight, lbs.	Weight of blood, lbs.	Head and feet, lbs.	Weight of entrails, lbs.	Carcass, lbs.	
0	24	15	15	11½	0½	3oz	1½	8½	Sucking pig for roasting.
1	3	18	16½	14½	1	3oz	2	11½	Do. same litter.
1	3	18½	18	16	1½	3½oz	2½	12½	Do. do. } breed. Hamp.
1	20	19	19	18½	1½	4oz	2½	14½	Do. do. } shire large ears
5	6	38	41			10lb.		56	Pork pig.
		31	30	86	4½	6½	17½	58	Do. do., pluck 4½lb.
8	25	37½	35	120					
		31	34					66	
		30	29			8		44	
		33	33					77	
		38	32					96	
10		36	36	152	8	10		108	Feet 1½lb.
		36	40					118	This difference is owing
		33	32					119	to quality of food given.
10	27	39	44	187	7	11	33	125	Pluck 9lb., crow 1lb.
10		41½	41½	222	10	11		151	Feet 1½lb.
10	30	44	40	194	9	11	27	135	Pluck 11lb. & crow 1lb.
		41	70½					332	Lord Hood's China pig.
3	21	28	31	94	5	7	20	55	Pluck 5lb., feet 1½lb.
		44	44		8½	17		127	Pluck 7½lb.
		56	56					254	Hams 72 & loose fat 13lb
		39	39					73	do. 29, feet, fat, & head 24
		49½	53½					159	Hams 56lb., & offal 52lb.
		48	44		8½	19		202	Pluck 7½lb.
		53	53					304	Hams 64lb., subtract.
		54	56					330	Including hd. ft. & pulling
60		52	55	388	15	25	46	286	Pluck 16lb., crow 1lb.
					40	55	113	771	Pluck 37lb., loose fat
									34lb. Hampshire hog.

This old sow cost one shilling a pound fattening;
guts, empty, 46—garbage 27=73

worked, and fatted them; they were of the North Devon breed, harnessed as horses, except the collars being cut open at small end, and placed over the ox's neck with small end downwards. Our land was strong, and full of sharp flints. I never had an ox shod, alias cued, nor ever had one lame. They got so much credit, that at two of our tenants' request, I furnished them with ox teams; but they soon gave them up, for no other reason than they did not like them. I gave up the working of oxen also, not on account of being able to plow cheaper with horses, for that cannot be done. When a team of horses are yoked, they hold up their heads cheerfully; but to see an ox team on a hot day, foaming at mouth, for they sweat from the tongue as dogs do, and with their heads down, short necks half covered with collar, and the horns projecting above the blinders, their appearance is too humiliating, and disgusts a British farmer, besides all the biped live machinery on the whole farm gets a crawling habit, as if affected with the ague.

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Shewn at Huddersfield; I saw it there, 5th January, 1819; Derbyshire breed; coarse, with elephant-like ears and feet, as large as a two yearling heifer; it was four years old, and was 6½ feet long, 7 feet girth; live weight 1456lb. It was hollow backed; yet it stood four feet and a half high: the above Suffolk hog stood as high to middle of back. Another Yorkshire hog, shewn at Bridge-house, 25th December, 1822, same dimensions as the Derbyshire hog.

American newspaper of 1819 says, a sow that had had one litter of pigs, measured 8 feet long and 9½ girth, weight 1406lb.; it is evident the face was measured, and belly; when well filled, instead of girthing at the breast.

In a few days after taking the pigs from the sow, she will be a briming; and if neglected, her heat will come as do the cows, in three weeks. A breeding sow's sty should not be less than eight feet square, with a rail all round a foot high, and a foot from the wall for the young pigs to go under; this prevents their being overlaid.

The old sow eat half a bushel per day of barley meal, for first eight days after beginning to fat her. A pig of thirty weeks old, put up to be fatted, eat nine pound of barley meal per day, two weeks; next two weeks, eight pound per day; and next two weeks, six and half pound per day, and as much water as they please; it

being always standing by them, and barley meal given them dry. Pigs weaned at seven weeks old, put up to fat for small pork, eat five quarts of barley meal per day each, for nine weeks. Season for pickled pork is all year round: season for fresh pork is January and February. Pig killing, according to size; butchers charge from sixpence to thirty-six-pence.

Pigs are such rude patients when unwell, that to keep them in good health is to give them good warm littered sty, wholesome diet. In fattening pigs, sometimes their appetites fail by over-eating, or want of exercise: give them crude antimony mixed in their meat, it will cure them of measles and liver complaint; for the mange, wash well with soap suds and a scrubbing bush, and smear with train oil and flour of sulphur: give sulphur mixed in their food also.

PIGEONS, always pair: they sit seventeen days; cock and hen sits alternately—they sit upon two eggs, and generally bring a male and a female, and breeds nine or ten times a year. The two prime breeding months are May and August; tares, pease, or barley, is their best food; for which they stray far, and flies thirty mile an hour.

PLANTING for shelter, in large sheep walks, is as requisite as farm buildings for other cattle;

whether marshes, downs, heaths, or mores; but never plant the summits; they being at best only eye traps; exposed to all winds, soon becomes open and naked at bottom, disfigures the country, and renders the place colder than when no planting was there. Plant where convenient, so as the summits of trees, when full grown, will be a little above summit of hill; and the flat ground on summit becomes valuable, by being well sheltered. Several hundred acres of summit is thus sheltered at Fixby, near Huddersfield: in summer, it is grazed by cattle, at four shillings per week, per head. Fifty years back, it was so bleak and mossy, (*polytrichum*, *commune*, *common moss*) that it carried but few more sheep than it does now of cows; and the plantations hath paid more, acre for acre, than the grazing ground; since planting, which is now, 1826, fifty-two years. At twelve or fourteen years growth, the plantation may be thinned, and sheep let in, in winter, if the trees are all firs; but if any deciduous trees, keep out the sheep, or they will eat off the bark; —(see article Shelter, in my *Dendrologia*.)

PLOWING. Of all the operations on a farm, next to good inclosures, and draining, there is none requires the farmer's attention so much as plowing, so as to suit the land. Deep plowing in clays is not good, nor on thin land, incumbant upon a substrata of clay, (do not mistake

clay marles for clay, as they will bear deepest plowing) but upon most others, as sandy, gravelly, peaty, or loamy, they cannot be plowed too deep. Deep plowing checks deep rooted weeds, and promotes a reciprocal exchange, between evaporation by day, and falling dews by nights, which is the making of good crops: this is easier to imagine than to explain. A gentleman of my acquaintance says, in breaking operations, plow deep, and if the land is poor, give it one plowing more. This one extra, is as good as a slight dose of manure. The ancients plowed much, and sowed slightly; the moderns plows little, and sows much; and that is the reason they gained from fifty to an hundred fold for seed sown. We rarely obtain twenty fold in our best land; sowing three bushels of wheat per acre, and harvest sixty; trench plowing, that is a second plow, follows the first in the same furrow, is good farming. There are three ways of plowing, viz. gathering, casting, and cleaving. Gathering is by beginning in the crown of ridge, and finishing in old furrows—hence such high ridges in some old grounds. Casting is by beginning at one side, throwing first furrow to next ridge, which leaves the crowns in same place and height as before. This is the most common way of plowing. Cleaving is to begin in the furrow, and finish at crowns of two adjoining ridges. Ribbing is to turn up two furrows,

so as to leave the ground under them unmoved. Thus the field is laid dry all winter, for beans or barley; this is also called *bouting*. I have seen *grattans* ribbed, or *skerbaulking*, by a single furrow thrown upon fast land, diagonally, as a, e or c, e in *Frontispiece*;—no other form exposes so much surface to the action of air. In gathering ridges, the first furrow is to be plowed back, or there will be a furrow breadth left unmoved, with the first furrow upon it, and no seed will lie upon it. These two furrows are termed *fierings*—the miles travelled by horses plowing an acre of land, exclusive of turning at ends of furrows:—

A twelve inch plitt gives eight and a quarter mile.

Eleven inches gives nine miles.

Ten inches gives 9 miles, 7 furlongs, and 44 yards.

Nine inches gives eleven miles.

Eight inches gives 12 miles and 3 furlongs.

Seven inches gives 14 miles, 1 furlong, & 31 yds.

Six inches gives sixteen and half a mile.

POLLARD; a tree with its top cut off; coarse bran.

POLLARD; male deer that hath lost his horns.

POLLED sheep, provincially *notts* and *natts*; no horns.—The editors of newspapers, both Lon-

don and provincial, errs in giving us the prices of sheep skins.

Thus—Down skins,4s. to 5s. 6d.

Polled do.4s. to 5s. 6d.

Sheep do.2s. 6d. to 3s. 6d.

Now, Down skins means sheep skins of the Southdown breed. Polled skins means either Southdown, Rumney marsh, Lincoln or Leicester breed—they are all polled, that is, they have no horns—hence polled cows, polled trees, and poll tax by Cæsar upon the Jews; by the Danes upon the English, called dane gelt, and another by King Dick II.—poll book at elections. Johnson's Dictionary errs by saying polling is cutting the human air; it is a vulgar phrase for hair-cutting. I knew a carrier that had his head dressed at Halifax, before the powder tax was thought of, and when finished, he gave master puff an halfpenny, and was fool enough to brag how he had been shaved, polled, puffed, and powdered all for one halfpenny, and a kick o' h—se. Polled should be shorn skins, as polled skins and horned skins are all one price, if same size. In April and May it is common to shear fat sheep before they are sent to market; then the felt or skin is not worth above one shilling, while the pelt or fleece will be worth from three to thirteen shillings, or more, according to quality of the wool.

Felt, hide, skin, or cloth made, without

weaving, as felt hats, and soldiers' belts—hence felt or fellmongers.

Pelt, is the fleece—hence pelt and hunger rot in sheep; here Johnson errs again.

I own I do not know what can be meant by sheep skins as above stated at 2s. 6d., if skins without horn or wool are worth 4s.; and hope these remarks will be the means of the misstatements being obviated for the public, in future, by the editors of newspapers.

PONDS, are indispensable for cattle on hills and downs, and where there are none, one should be made; in the south, they are made with chalk, and grouted with quick lime, thus—excavate twenty feet wide, and four deep; then line the whole with well broke chalk six or eight inches, and grout; then lay on six or eight inches more, well broke, rammed, and grouted; choose the highest place possible for the pond, yet so as to catch some water from higher ground, in heavy showers; and when once it is seasoned, the water in it will act as a condenser to light rack clouds, similar to mosses on mores and mountains, which are the sources of all great rivers: to make drinking pools in other calcarious soils, sands and gravel puddling must be resorted to. (See Puddling.)

PORK, pickled, is cured by cutting it into

proper pieces, and laid into pickle tub, with salt mixed between every layer, about twenty ounces of salt to each stone, 14lb. of pork; be sure the pork is cold before salting; cover the tub close and there will be no want of pickle. It is in season at all times, and if large, as in ~~Sussex~~, they pickle pigs of from one hundred to two hundred weight. Such pork eats milder at three or four years old, than sooner. Pigs at forty to sixty pound makes the most delicate pork:—the pork is to be kept from floating, by weights.

POTATOE, *solanum tuberosum*. On 10th April, 1801, I sowed some potatoe seed, saved the preceding autumn from potatoe crabs. They were up 10th May, and bloomed 10th August, as strong as those planted by sets; they were taken up on 28th October; they were sown so thick that few of them attained to the size of a hen's egg; average size was that of small birds to blackbirds' eggs. The seed was sown on a well sheltered south border, in Dorsetshire.

A cube foot of potatoes weighs forty pounds, and a Winchester bushel, strike measure, will weigh nearly fifty pound, and up-heaped, sixty-four; all the following experiments were by the bushel up-heaped.

The quantity required to plant an acre depends upon size of sets, as well as distance of lines; suppose all sorts planted at four to every yard of ridge line or row.

All bruised potatoes, and such as passes through a riddle, whose meshes are one and a quarter inch square, are fit only for pigs. The following statement will be found useful :—

1½ inch diameter, is 32 potatoes to a pound, or 2048 to a bushel ;—to plant them whole, in lines, 80 inches apart, will take 11 bushel and 3 gallons to an acre.

1½ inch diameter, is 16 to a pound, or 1024 to a bushel, and will take 22 bushel and 3 pecks to an acre.

1½ inch diameter, is 10 to a pound, or 640 to a bushel, and will take 36 bushels to an acre, or 18 bushels by cutting them in two, which is about the size generally cut. To plant these whole, will be 1 ton of sets per acre ; if cut, in course only ½ a ton, and will cost 2 shillings cutting.

2 inches diameter, is 8 to a pound, or 512 to a bushel ; each potatoe cut in two, will take 25 bushel per acre.

2½ inch diameter, is 4½ to a pound, or 298 to a bushel, and cut in two, will take 30 bushel per acre.

2½ inch diameter, is 3 to a pound, or 192 to a

bushel ; and if cut in four, will take 30 bushels to an acre, and cost 4 shillings cutting. Cutting common sets, common way, is two-pence a bushel ; and 16 bushel, of 64 pound, a fair average of sets, per acre.

Suppose an acre, exactly square, will be $69\frac{1}{2}$ yards for side of the square ; and potatoes planted in lines, 24 inches apart, would give $104\frac{1}{2}$ lines, of $69\frac{1}{2}$ yards long, each ;—total acre, 7260 yards.

27 inch intervals,	$93\frac{1}{2}$ lines,	total acre	6440 yards.
30 inch ditto	$83\frac{1}{2}$ ditto	ditto	5808 yards.
33 inch ditto	$75\frac{1}{2}$ ditto	ditto	5324 yards.
36 inch ditto	$69\frac{1}{2}$ ditto	ditto	4840 yards.

The most usual distance of lines, or ridges, is twenty-seven to twenty-eight inches ; and as farmers in general, are not very nice in cutting their sets, whether they have one or two eyes to each set, they plant sixteen or seventeen bushels per acre :—twelve bushel, properly cut, will produce as good a crop as sixteen. Just as the tops of potatoes begins to be seen, give them a light harrowing, and a slight dressing with lime ; they will rise cleaner and more mealy, for it.

Eight acres oat stubble, plowed in autumn, and well water furrowed, plowed, dragged, and harrowed twice in spring, and fifteen large cart loads of manure per acre, and the whole field set out in forty feet breadths, and drawed one furrow

in each division; three women placed the sets, and two men put on the manure, and the plowman was called back to go three bouts, whilst the second ridge was planted; the plow came and plowed three bouts to second ridge, whilst the planters planted two more lines to first ridge, and so on, alternately. The eight acres were planted in ten days, in lines two feet apart; one horse to plow, an eight inch furrow. The field was flat, rich marsh land, a little inclinable to peat; the seed was champion potatoe, and took fifteen bushel of sets per acre; cost three shillings an acre, for cutting sets; they were planted between twenty-fifth April and ninth May; they were twice flat hoed, at five shillings each time, per acre, and afterwards earthed by a drill plow, being drawn once between each line; they were up eighth June, and bloomed eighth of August; produce in November, see number 8, in table. Fifty yards of ridge produced a sack, of two hundred and forty pounds. A man and boy forked and gathered fifty yards per hour, or ten sacks per day, fourteen days and a half, at three shillings per day, or two pounds thirteen shillings and sixpence an acre, or a fraction under fourpence a sack. In stronger land and worse crops, the expense of forking and gathering, from fourpence to one shilling a sack.

All the Columns are: calculated to Sacks per Acre.		Whole potatoes planted.	Half potatoes.	Common cut sets.	Crown sets.	Umbilical sets.	Common eyes scooped.	Crown eyes scooped.	Sheets planted.	(see below, 138.)	
No.											
1	Early dwarfs, ...	120	100	84					72	Lines 18 inches apart. In 18 inch distance.	
2	do. Manleys, ..	100	100	90					70		
3	do. Kidneys, ..	160	120	109						Two feet lines.	
4	do. do.....	90	86	48	40	37	33	85			
5	do. do.....	115	108				61			Do. Do. in garden, 18th April. Do. 9th July.	
6	Champions,	174	218	208	202		108	108			
7	do.	231		86						Do. field planted, 8th May. Both one sort and 30 inch intervals.	
8	do.			149							
9	Pink eyes,			75						In garden. 120/130, two feet do. (see top for old sets. Planted at twenty-seven inches intervals between rows, one acre, at Moseley, Sixby, Yorkshire.	
10	Painted ladies, ..			157							
11	Sundries,			254							
12	Early silverskins.			270							
13	Green tops,			150							

I saw twenty yards of ridge taken up, the produce
112lb.

No. 3, twenty yards of ridge gave seventy pounds.

No. 7 was planted in lines 30 inches apart, instead of 42; at so late a season, they produce three times as much tops as those planted in April.

No. 3 was small potatoes, 1,600 to a bushel, or 25 to a pound.

No. 4 was half size of last, 3,200 to a bushel, or 50 to a pound,

No. 5 do. do. 1,000 to a bushel, or 16 to a pound.

Whole potatoes of one ounce each, produced 176lb. from twenty yards of ridge, same sort, and 12 to a pound; twenty yards produced 146lb. same sort, and 9 to a pound; twenty yards produced 146lb., all champions, in 30 inch ridges.

No. 10 is not a prolific sort, but valuable on account of being best of potatoes, in spring. It was not growed upon good land, but the ground was trenched 18 inches deep, and the rows well manured with cow dung, more than a year old, over the sets; the sets were cut from potatoes 320 to a bushel, or 5 to a pound, and the bushel produced 1,500 sets, planted in rows thirty inches apart; twenty yards of ridge produced one hundred and twenty-eight pounds. Such crops cannot be obtained in the common mode of setting ridges, and manuring three ridges at a time, with carts, the wheels rolls the bottoms of two, and

the horses trample the middle one, so as to destroy the reciprocal action between evaporation by day and falling dews by night, so essential to vegetation.

I had some of the small white kidney's planted upon said trenched ground, which forced them to such a size, that they had a core in the middle which could not be boiled soft. Potatoes of 5 to a pound, slit long way, and through the broadest way, twenty yards of ridge produced 220lb. in garden: this I consider to be the only right way of cutting potatoes, as they are formed of two lobes, and when decomposed by boiling or roasting, and squeezed in the hand, always splits the flat way; whole potatoes planted early; the crown and a few of the strongest eyes only will vegetate, but when planted late all the eyes will vegetate, and produce one-seventh more; but not so many marketable potatoes.

Seventy-six crown sets from one peck of potatoes, and 320 common sets planted separate, and when taken up found no difference in produce. Whole potatoes planted in June, are most productive; all the eyes will break if the sorts planted are pink eyes, oxnobles or yams; the lines should be four feet apart at least, for the tops will run 5, 6, 7, 8, 9, or 10 feet, according to nature of land and weather being wet or dry. Potatoe sets scooped out is a precarious kind of economy, as their glands are not strong enough

to support the shoot, in dry seasons. In the years of scarcity, from 1796 to 1800, I tried many experiments for F. I. Brown, of Frampton, Esq. M. P., the results of which were to be laid before the Members of the House of Commons;—the eyes were taken out with a harico scoop of one inch diameter, and four-fifths of potatoe saved; but I found the sets injured in the operation, and I ground the bottom out of scoop, so that it became a sharp edged ring which did its work well, but not expeditiously. I got one made in form of a cheese taster, two inches long, and one inch wide, put into a short handle; this answered well, and is preferable to a knife for common cut sets; with it I took 500 single eyes, weight nine pounds, from 56lb. of large potatoes; twenty yards of ridge planted with some of these sets produced only sixty-five pound, so that by saving 13 bushels of mutilated potatoe, fit only for pigs, at a fair average crop of one hundred sacks per acre, there is a deficit of thirty-five sacks in the crop for the thirteen saved.

Our political economists did not stop here—the potatoe was to be caused to vegetate, and shoots stripped off, to plant the potatoe then stored up for eating. To obtain shoots early, the potatoes are placed side by side close, and only one deep, in the bottom of a box, and placed in a warm situation, and the sets to be covered with mill seeds or saw dust, ashes, or any thing light,

three or four inches thick, and as soon as the potatoes gets fairly into green leaf, above the covering, they are fit to be taken up to plant; if the box hath been under glass, the shoots will be in a proper state to be taken off in one month; but if out of doors, the shoots will require two months to mature them, so that without some artificial warmth, they will not be ready before Mayday; by being thus late, they will be likely to escape frost, in south; in north, they will be three weeks later. It is not possible to plant these delicate shoots by plow, they require the garden and gardener's abilities.

Planting potatoes with garden spade, in
 thirty inch ridges, to open 100 yards
 of trench in one hour, per acre,..... 58 hours.
 Planting sets half an hour, or per acre, 29
 Putting in the manure over the sets,
 one hour, or 58
 Covering do. with rakes half an hour,
 or per acre, 29

Total 174 hours.

Suppose the man works ten hours per day, at 2s., seventeen days and a half at 2s. will be per acre, £1 15s.; he had to wheel the muck fifty yards, allow four-pence a cart load, for filling and wheeling fifteen loads, makes the spade tillage just double to plow tillage, (see the above statement of eight acres)—three women at 1s. each, two

weaving, as felt hats, and soldiers' belts—hence felt or fellmongers.

Pelt, is the fleece—hence pelt and hunger rot in sheep; here Johnson errs again.

I own I do not know what can be meant by sheep skins as above stated at 2s. 6d., if skins without horn or wool are worth 4s.; and hope these remarks will be the means of the mis-statements being obviated for the public, in future, by the editors of newspapers.

PONDS, are indispensable for cattle on hills and downs, and where there are none, one should be made; in the south, they are made with chalk, and grouted with quick lime, thus—excavate twenty feet wide, and four deep; then line the whole with well broke chalk six or eight inches, and grout; then lay on six or eight inches more, well broke, rammed, and grouted; choose the highest place possible for the pond, yet so as to catch some water from higher ground, in heavy showers; and when once it is seasoned, the water in it will act as a condenser to light rack clouds, similar to mosses on mores and mountains, which are the sources of all great rivers: to make drinking pools in other calcarious soils, sands and gravel puddling must be resorted to. (See Puddling.)

PORK, pickled, is cured by cutting it into

bushel ; and if cut in four, will take 30 bushels to an acre, and cost 4 shillings cutting. Cutting common sets, common way, is two-pence a bushel ; and 16 bushel, of 64 pound, a fair average of sets, per acre.

Suppose an acre, exactly square, will be $69\frac{1}{2}$ yards for side of the square ; and potatoes planted in lines, 24 inches apart, would give 104 lines, of $69\frac{1}{2}$ yards long, each ;—total acre, 7260 yards.

27 inch intervals,	93 lines,	total acre	6440 yards.
30 inch ditto	83 ditto	ditto	5808 yards.
33 inch ditto	75 ditto	ditto	5324 yards.
36 inch ditto	69 ditto	ditto	4840 yards.

The most usual distance of lines, or ridges, is twenty-seven to twenty-eight inches ; and as farmers in general, are not very nice in cutting their sets, whether they have one or two eyes to each set, they plant sixteen or seventeen bushels per acre :—twelve bushel, properly cut, will produce as good a crop as sixteen. Just as the tops of potatoes begins to be seen, give them a light harrowing, and a slight dressing with lime ; they will rise cleaner and more mealy, for it.

Eight acres oat stubble, plowed in autumn, and well water furrowed, plowed, dragged, and harrowed twice in spring. and fifteen large cart loads of manure per acre, and the whole field set out in forty feet breadths, and drawed one furrow

POULTRY are of various breeds; the most esteemed by the London poulterers, are from Dorking, in Surrey; they are of such a large frame as to be fatted up to twelve or thirteen pound weight. They have five claws; viz. three before and three behind. One cock is sufficient for six or seven hens. Ten eggs is better than more to set under a hen; she sits twenty-one days. The great art in keeping poultry healthy, is that of cleanliness: their houses, like pigeon houses, should be frequently lime washed, and care taken they never drink dirty water; they should have fountains, that are made at potteries, in form of bee-hives, and when filled with water, are placed as a bee-hive; thus they have pure water, without a possibility of dirtying of it. The pip, pep, or scale upon the tongue, comes by drinking dirty water, or eating dirty victuals. To cure, draw the pip, or white scale from the tongue with a needle, and wash with salt and water.

Flux is caused by eating too much: to cure, give them pease and bran mixed and scalded; give them rice or wheat, keep the house clean, well aired and cool, by frequently throwing water against the sides, and over the floors, to destroy the vermin.

Roup is known by the rumpled appearance of the feathers, and a swelling on the rump; where the bottoms of the feathers looks bloody, clip them off, and wash the rump with salt and water.

bushel; and if cut in four, will take 30 bushels to an acre, and cost 4 shillings cutting. Cutting common sets, common way, is two-pence a bushel; and 16 bushel, of 64 pound, a fair average of sets, per acre.

Suppose an acre, exactly square, will be $69\frac{1}{2}$ yards for side of the square; and potatoes planted in lines, 24 inches apart, would give $104\frac{1}{2}$ lines, of $69\frac{1}{2}$ yards long, each;—total acre, 7260 yards.

27 inch intervals,	$93\frac{1}{2}$ lines,	total acre	6440 yards.
30 inch ditto	$83\frac{1}{2}$ ditto	ditto	5808 yards.
33 inch ditto	$75\frac{1}{2}$ ditto	ditto	5324 yards.
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It is no unusual thing for a Norfolk turkey, when plucked and drawn, to weigh thirty pounds, when well fatted; to increase these luxuries, the dove-cot and poultry houses should be well washed, once a week in summer, with a garden hand engine, all over the interior. The benefit would be incalculable, by destroying the flies, and rendering the places healthy; and at midsummer, the houses should be white-washed with lime grout thrown up with the said engine.

PRICKET, or spitter; a male deer of second year.

PRINT; footing or mark of a hare or fox's foot.


PUDDLING. Clay is not good; good brick earth or loam is best, laid on nine inches thick; water thrown on, and then well worked with spade or canal cutter's hollow tool, not by turning, but thrusting down the spade, and shaking the handle to and from all over, until the earth and water is uniformly mixed into a paste like consistence, and then add another layer and so on.

PULSE, is an agricultural term for any green crop sown on purpose to be plowed in for manure, when in bloom, as tares, lupine, buck-wheat; a second crop of clover, &c.

PEARLE, or **purle barley**, is made by a barley mill exactly as oats are shelled in a oat mill, and is excellent in broths or soups boiled therein.

PUR lamb, is male lamb, Dorsetshire.

PUTREFACTION. (See Decomposition.)

QUINCUNX planting, is to plant so as to form equilateral triangles, thus  which gives the plants one-seventh more room than if planted in squares, *i. e.* rectangular. (See Turnips, and the Frontispiece.)

QUICK, or thorn hedge planting. (See Fences.)

RABBITS, if well kept, will breed five times a year; and time of gestation thirty-one days; brings forth at kindling six to eight young, and sow-like, is ready again for mate in five or six weeks. Young does begin to breed at five or six months old; young are 11 days blind, and 11 more before they come out of the burrows; they are weaned at six weeks, and should be separated to prevent their fighting. Grey rabbit skins, in season, worth fourteen-pence; white do. called silver skins, are worth twenty-one-pence, and out of season, half price. The skins are black inside, when killed out of season, and white in the

inside, when killed in May or June; but best in November, then both skin and carcase are in season, and are of equal value.

RAM, tups, should never be suffered to be with last year's lambs before March, nor with ewes after their lambs are weaned, until the proper time, that is, Michaelmas in this country. One ram will serve sixty ewes, and if vigorous, seventy or eighty.

RAPE, brassica napus, 2,500 seeds per inch, and weight forty-nine pound a bushel; average produce of seed per acre, thirty to forty bushels; expense of shearing, drying, thrashing, and cleaning, all done in field, at one shilling a bushel, and is worth seven shillings per bushel. Seed to sow an acre, five or six pound; time of sowing is June, or July; and if for seed, it occupies the ground twelve or thirteen months; if to be eat by sheep, it is termed cole, and is so strong in good land as to bid defiance to sheep getting in amongst it, any other way than eating themselves in. No herding off is requisite to such a crop, which will keep a hundred sheep eight days, at seven-pence per sheep, which is two-pence per head more than any farmer will give for sheep at turnips for eight days. Such a crop will produce twenty or thirty bushels of seed, after being thus eat. Seed, one gallon is

frequently sown per acre, after pease or tares, to plow in as a manuring for wheat; it is sown also on old clover leys, in August, for spring feed, if not eat off for sowing wheat.

RYE grass, *lolium perenne*: two bushels of seed per acre, with ten pound of broad clover seed, will produce as good hay for horses as possible, and as much of it per acre. The Sussex black seed, alias *trefolium agrarium*, hop trayfoil, do well in this artificial mixture, but it will not bide more than two or three years; this is properly *medicago lupulina*, or black medic. If meant for meadow, or permanent pasture, broad clovers inadmissible.

REAPING corn by the acre, will vary according to the crop, from eight shillings to eighteen. A good crop of wheat, shorn low, will take a man five days, at least; and same kind of crop can be cut by the same man in two days, when half the weight of straw is left in stubble, knee high; and sometimes as much wheat as would pay for harvesting, when much ruffled by winds: It is common in Yorkshire to let shearing by thrave, or score, thus told:—eight sheaves makes a hattock, and three hattocks, a thrave: twelve sheaves makes a kiver, and two kivers, a thrave; ten sheaves makes a stack, or stook; and two stook, a score. Beans are worse to cut than

wheat; but as there are no bands to make, the price of reaping is the same; five or sixpence per thrave; oats and barley four-pence. When corn stands well and thick, the bargain is by thrave; but if straggling, then it is by score. The sheaves well bound, to measure thirty to thirty-six inches round, on corn side of band, and set up in hattocks, stooks, or kivers, ready for counting. It is a powerful active shearer, that can make his bands, fill them; bind and set up a thrave in one hour, every sheaf measuring three feet round. I have seen a lodged crop that produced six hundred sheaves per acre, that took two hours to reap one thrave; ten minutes to bind, and five to set up; it was shorn at eighteen shillings an acre: twenty-five thrave for eighteen shillings, is almost nine-pence a thrave;—it was cut low. I have had 1200 sheaves of barley per acre; girt three feet, and weight twelve pound, at four-pence a thrave, would be sixteen and eight-pence per acre, housing included.

RED-WATER, blend water, bloody urine, to cure, see fourth vol. of Scotch Agricultural Magazine, and Blendwater.

REED, *arunda donax*, and *arunda phragmites*, common reed grass, used by plasterers, thatchers, and for screen fences, in gardens. What is called reed, in the west of England, is

wheat straw, drawn by the ears, from under a weight; the ears are cut off, and straw tied up in bundles, of twelve to fourteen pound weight, called reed sheaves, worth two pounds per hundred, (see Thatching,) in the year 1810.

RENNET; to make, salt down the calves' bags: one bag, thus salted, will, in twelve months, produce one quart of brine, strong enough to swim an egg; pour it off, and let it stand a month, and one gill will be sufficient for four gallons of new milk; if not new milk, it must be made as warm as new milk.—Samuel Bagster's Gleanings. (See Cheese.)

RENTS. Some calculates that a farmer is to raise three rents in value upon his farm, to do well, if it is an arable farm; four rents on value of grass crops will not keep his books straight; the farm will become debtor to cash, if the farmer enters every thing fairly in his journal, viz. what is consumed by working horses; labourers' diet, and family expenses; tradesmens' bills, tithes, parochial and other rates and taxes; interest of capital; casualties, and decrease in annual value of horses; wear and tear, and for his own superintendence and skill; for if the farm rent will not allow that, he had better be elsewhere.

RICKS, or stacks. The stadle should always be proportioned to the supposed number of tons or loads of hay or corn to be put upon it. Thirty load will require a stadle twenty-one feet long and fourteen wide, to have a handsome full rick; if for twenty loads, eighteen feet by twelve; and for ten loads, fifteen by ten. Round ricks are preferable for corn or hay, except haystacks near towns, that are to be trussed out for markets; then the rick sides and ends cannot be too upright. (See Hay, and Harvest.)

RIVERS. Crooked ones eat up much land, and their courses are in general through the richest of our holmes, meads, and marshes. Much hath been wrote, and plans laid down by which to straighten them; their serpentine course is a natural one, and before any attempt is made to divert or draw the water into a straight line, a level should be taken from the outlet to the head of the intended new line, in order to ascertain what fall there is, and the difference in length between new cut and old river. Suppose the new cut to be three hundred feet long, and the old river nine hundred feet; there must be a rolling bay made at the outlet for the water to tumble over, at least, two feet and a half high, leaving a fall of only six inches to check the accumulated velocity and weight of water, or else the first floods that come will not only wash

down the banks, however easy their slopes may be, but they will tear up the bed of river, and drive it in shoals. Suppose the floods to occupy fifteen feet in width, and four in depth,—the waters will not go quietly away in a direct straight channel, of a mile in length, if the fall is more than six inches. This I experienced by straightening a length of the river From, at Frampton, in Dorsetshire.

ROADS, in this trading country, is a subject that every farmer hath an interest in, consequently ought to know how to set about repairing or making new roads, in the best manner possible. The first thing to be attended to, is a judicious choice of line, so as to evade hills as much as possible, and where they are unavoidable, then take a slanting diagonal direction. We have turnpike roads in the north, and amongst the chalk hills in the south, that rises and falls one foot in five, they are dangerous to avoid locking or drugging. No part of a road should fall more than one foot in fifteen, and that is too much in long lengths, as the impetus of carriages increases in proportion to length of declivity. The next object is, get rid of any water which may have to cross the line, always bearing in mind when making drains, culverts, or bridges, to allow room for accumulation by floods. The next object is forming the bed of road; if it is dry open

ground; as chalk, or any other calcareous or stony ground, there is nothing more wanting than to excavate to the depth intended for the stones, with due attention to a fall for surface water, as rains; to run off lengthways to certain places, where it may fall off to one side; but in clay or swampy places, drains should be made in the bed of road and cross the footpaths, into ditches on each side, and the whole bed covered with coarse open stones, nine inches thick, before the better broke materials are laid on. In chalk districts, the flints may be carted on in the rough, and spread to a proper level; a few of the largest broke, and then well blinded, viz. covered with chalk, which binds the flints together, as the road wears under carriages, a few flints will show above the chalk; they are to be broke with a heavy hammer—this is 50 per cent. cheaper than breaking the flints at first. In other districts where neither chalk nor gravel can be had in sufficient quantities to blind the road, the stones must be broke small. Mr. Wright, of Chelsea, says the stones should be broke to two inches square, (see first vol. of the Transactions of the Board of Agriculture; ninth vol. says, as small as walnuts.) I was two years road making in the parishes of Frampton, Stratton, and Bradford, Dorsetshire; these were flint roads. I have made gravel roads in Essex. In Somersetshire I made roads with Bath or box

hill free stone; and in Shropshire, with plum-pudding stone; and always finished them as near level from side to side, as possible. I first took the hint from observing that where two roads crossed each other, (although the part intersected had double the wear of any other part), it was always the best; the reason is obvious—there was no convex crown to confine the horses to one line. I have never met with any stone for roads equal to the metallic limestone; such is Craven, Derby, and Plymouth rock—flint is better, and were the commissioners of roads in the purlieu of London, to get flints, by water, from Kent, Surry, and Herts, I think would be cheaper than gravel. Fluted rollers might be made to crush them to any desired size, were the rollers worked by steam.

RIBBING, is a mode of plowing practised in Wiltshire, in order to expose as much surface as possible to winter frosts; it is generally on grattoons and earshes; the ribs are plowed in a diagonal direction to the stretchings. (See Plowing.)

ROLLING, is an essential operation to be performed on most sorts of crops in spring. The best roller I ever saw was near Bath; it was constructed of four cast iron wheels, thirty inches diameter, with holes in the rim six inches apart, oak plank three and half feet long, and six

inches wide; these planks are fastened upon one pair of the cast iron wheels, by bolts and a screw nut to each bolt on inside; the ends of planks and outer rim of wheels are exactly flush; the other pair of wheels being covered, an iron axle-tree is put through all the four wheels and the cheeks of the roller frame, which makes a complete roller of seven feet in length; the joint in middle admits of its being turned round as easily as a cart, without scraping the ground or straining the thill horse; its ample diameter causes it to follow the horses, so easily, that it is not too heavy for barley, and by having a box upon the frame, right over the roller, it may be loaded to any weight desired for other purposes:

Spike roller should always be made of good sound solid oak, and never less than twenty inches diameter, each spike four inches long, one inch square at shoulder, and three quarters at end; each spike to be gagged rough on the part to be drove into the roller, five inches; the gags will prevent their coming out; spikes to be five inches distance—quinounx.

ROOKS, are generally looked upon by the farmer as a nuisance; it is true they pick up a little of his grain in seed-time, and it is equally true they work to his advantage all the other parts of the year, by devouring slugs, worms, grubs, caterpillars, &c. I have seen the young

oak leaves so infested later end of May and in June, with caterpillars, that it was disagreeable to ride through the wood, the vermin hanged so thick suspended by a cobweb kind of thread; but as soon as young rooks were strong enough to get out to feed, they clear a forty or fifty acre wood from caterpillars in a few days. The Americans hath no rooks, and the farmer is so much annoyed by vermin, as to induce government to import some rooks. (H. Wansey's History of America.)—Grain is not the favourite or natural food of rooks; they eat it in spring, through necessity, having their young ones to feed, and the ground is too cold for insects to move in seed-time; but in harvest, the vermin are so plentiful for the poor degraded rooks, in the meads and pastures, that they are scarcely ever seen in stubbles.

ROTATION of crops, or course of cropping in succession. All writers on agriculture give their favourite rotations. Land stewards, and law agents in general, fetter the tenants grievously with restrictions in respect of cropping. A good tenant will never crop so as to injure the land, and a bad or very poor tenant cannot be bound by paper fetters; restrictive covenants are no good to a tenant, nor any use to the landlord, until within three years of the expiration of lease. Courses of crops will vary as land varies

in quality, also as climate varies. A good farmer is never at a loss to know what crops to introduce, nor can he cross crop; what is termed cross cropping, is taking two white or culmiferous crops in succession. A farm that is well tilled, and moderately worked, *i. e.* cropped, will bear that; by comparing rotation tables, it will be found they contradict each other, as widely as the names of all farm crops will admit of, yet certain farms and districts hath their rotations formed on rational experience, and when formed into tables, is not unlike ringing changes of three to any number of bells; and one failing crop destroys the harmony, as much as throwing a bell or breaking a bell-rope.

The rotations on good land that will carry leguminous crops, as cabbages, beans, and pease, will also carry bulbous and tap-rooted crops, as turnips, potatoes, carrots, and parsnips. In such land the crops can be varied at pleasure; on the highlands of Yorkshire, and northward, the farmer is bound to one course only, that is, oats, if sheep are kept, the best farmers will grow turnips, and they might grow tares to be eat green; pease, beans, barley, and wheat, are totally out of the question, as there is not one season in seven they come to perfection.

In light land manure is always laid on for turnips, and if eat in autumn, it is plowed and sown with wheat, but if eat in spring, it is sown with

barley and clover seeds—so far one farmer goes; another on same kind of land always manures for wheat, observing he can grow turnips to greater certainty after manured wheat, being less subject to the fly, than on manured fallows; barley or oats after turnips with seeds, mown year after for hay, fifth crop wheat or oats. On strong clay land, wheat, beans, and clover, forms the rotation. Chalk land now cropped by a Sussex farmer:—

Dates	1806.	1807.	1808.	1809.	1810.	1811.	1812.	1813.	1814.
1st.	Turnips	Barley	Clover	Wheat	Turnips	Oats	Turnips	Wheat	Turnips
2nd.	Wheat	Barley	Seeds	Oats	Do.	Barley	Clover	Do.	Rape
3rd.	Tares	Wheat	Beans	Fallow	Wheat	Seeds	Turnips	Do.	Do.
4th.	Barley	Seeds	Wheat	Beans	Fallow	Wheat	Clover	Pease	Wheat
5th.	Wheat	Turnips	Turnips	Wheat	Barley	Clover	Wheat	Turnips	Barley
6th.	Turnips	Rape	Wheat	Barley	Turnips	Wheat	Turnips	Barley	Clover
7th.	Barley	Rape	Wheat	Oats	Rape	Wheat	Turnips	Wheat	Rape
8th.	Clover	Wheat	Turnips	Turnips	Wheat	Barley	Clover	Wheat	Turnips
9th.	Turnips	Turnips	Wheat	Barley	Clover.	Wheat	Oats	Turnips	Clover
10th.	Barley	Sainfoin	Sainfoin	Sainfoin	Sainfoin	Sainfoin	Gratton	Gratton	Oats
11th.	Tares	Wheat	Turnips	Barley	Clover	Gratton	Turnips	Wheat	Seeds
12th.	Turnips	Wheat	Barley	Sainfoin	Sainfoin	Sainfoin	Sainfoin	Sainfoin	Sainfoin
13th.	Barley	Sainfoin	Sainfoin	Sainfoin	Sainfoin	Oats	Turnips	Barley	Clover
14th.	Clover	Oats	Fallow	Wheat	Seeds	Rape	Wheat	Seeds	Fallow
15th.	Pease	Turnips	Oats	Clover	Wheat	Turnips	Barley	Sainfoin	Sainfoin

Number of Fields

The above table of rotations is not introduced as a theory for cropping similar land by, but to show how the land was actually cropped for nine years by one of the best farmers upon Stanstead estate; and I hope it will prove serviceable to they who occupy calcarious soils, by some writers called stonebrash. What is meant by seeds in the above table, is ryegrass, trayfoil, and hay-loft grass seeds mixed; and sometimes mown; but generally eat by fatting wethers; the rape always eat, and never stands for seed.

ROT, in sheep; I believe the disorder incurable. (See Sheep.)

ROWEN, edish, aftergrass, or fog, is generally eat by cows and sheep, except near London. (See Hay.)

ROUP, in poultry, is a boil upon the rump, and is known by the ruffled state of the feathers. To cure, pluck away the rump feathers, and open the swelling, press out the matter, then wash the rump with brine. (See Poultry.)

BUSH, juncus, effusus, to destroy, lay the ground dry, cut them oftence to prevent their seeding, and fill their crowns with quick lime.

RUTA Baga, or sweed turnip. (See Turnips.)

BUTTING season, or desire in deer, begins 9th of October, and continues three weeks, when the bucks may be heard growning, at half a mile distance.

RYE, secale cereale, fifty-four pound per bushel, and 480 seeds per cube inch, gave 48lb. of meal that made 58lb. of bread. Two bushels of seed to be sown per acre; average crop, twenty-six bushels. A sack of rye ground for bread, in Yorkshire, that weighs 210lb., will produce 168lb. of meal, and 50lb. of bran. Rye meal and St. foin hay, makes finer flavoured beef than any other known feed. Rye, blooming in a wet season is sure to be a bad crop, because the Antheræ hangs out beyond the flower. In gloomy weather, the upper part of ears of corn will be in bloom a day or two before the lower part, and so susceptible of injury is the bloom of rye by rain, that it often happens that one half of the ear is without grain, although not noticed by superficial observers; it does better on poor thin land than barley; it is much sown in the south, in September; to be eat in spring by ewes and lambs, also for mowing green to soil cattle with, same as green tares; but when intended for seed, it may be sown any time in winter. It is known in Mark-Lane by name of Dantzic black rye, and the spring rye secale, var vernum or Dantzic white rye; it stands our

winters also, and either sort comes to harvest early enough to get a good crop of rape after it. Rye straw is worth one fourth more than wheat straw, for litter, thatch, or hats.

SAINTFOIN, *Hedysarum Onobrychis*. In Dorsetshire it is called French grass; it affects sandy gravelly soils, that hath a mixture of marles, also calcarious soils, as chalk, and thin loose lime stone land, wherein it pushes down its top roots; this and lucern is to these dry soils, what red clover is to strong retentive loam and clay marles; they are preferable to clover, as they are permanent for years, nor do they ever have cattle like clover. Saintfoin is so wholesome, that lambs are turned on to its stubbles, as an hospital for the sick and poor. Best way of sowing is in nine inch drills, where it may be hoed and kept clean; one bushel of seed, in husks, per acre, in drills, and four sown broad cast, with barley or oats. One bushel in husks weighs twenty-eight pounds; one cube inch contains 210 to 230 seeds, or 4000 if milled. One bushel will weigh 64lb., so that twenty pound of milled seed is equal to five bushels in the rough husks or teguments, so that twelve pound for broad cast, or four for drills of milled seed, is sufficient to sow an acre, and will produce thirty to forty bushels of seed, this will lucern above most soil, by reason of their propensity to root

deep. When cut for hay, it should be mown before it blooms, and managed same as lucern, and top the rick with a few loads of meadow hay to press it down, by which both are improved in the sweating. Three tons per acre is no unusual crop from an acre of land that suits it, and is worth twenty per cent. more than the best meadow hay of equal weight.

SALTING meat. For every stone of sixteen pound, use one pound or pint of common salt, well rubbed into the bacon, care being taken it be cold before salting; and in four or five days after salting, pound as many ounces of saltpetre as there were pounds of common salt used; this is to be applied just at the bone joints of hams and shoulders; it is to lay in salt a week more after, and may then be hanged up to dry—this is our Yorkshire mode of curing the hams, so much admired in London. The loss in drying is one seventh besides salt and labour. I found the loss to be one-fifth, viz: 20 per cent by smoke drying, in Sussex. Pickling pork, (see Pork.)

SALT marshes, near the sea, are renowned for keeping cattle healthy; and now salt being cheap, the inland farmer may imitate those marshes, by giving his horses, cows, sheep, and hogs, salt to lick; they like it, nor will they take too much, so chaste is their appetites,

(except, hogs)—when fattening, salt their food.

SAND. Sea sand dry, one foot weighs 83lb, and wet, 79lb; sea gravel or ballast, 80lb.; road sand 82, and grit sand 95lb.

SCUT,—the tail of hare and rabbit.

SCAB, shab, or mange. (See Sheep.)

SCOURCE; changing or casting of deer pens, alias hair; time for is in May.

SEED-TIME. There is no specific time can be fixed upon, as much depends upon soil, seasons, and climate. Wheat does well any time from September to February; beans, February and March; pease, March and April; also, oats and barley April to middle of May. Potatoes, in the south, third week in April; and in north, first or second week in May. Old farmers, in north riding of Yorkshire, will not sow their lent corn, until the sun is powerful enough to raise gasomer or evaporation visible; then they say the ground's a briming.

SCUFFLER, or seven share plow, hoe, drag, or harrow, alias cultivator.

SEWEL. Sticks set up, and a line with

feathers tied in it, extending the desired length from stick to stick, at about four feet high, to prevent deer from passing; they are so timorous as not to come near it except by force.

SHEEP, are divided into three classes, by Doctor Dickson, in his valuable work, printed 1805. First class comprises the Welch, Westmoreland, Cumberland, Yorkshire, north and south east of Scotland, the Cheviot hills in Northumberlandshire; and south of Scotland are called mountain sheep. His second class comprises the Hereford, Dorset, Somerset, Sussex, Norfolk, and some parts of Cumberland, and are called the short or clothing woolled breed. The Doctor ought to have put the Cheviot breed into this class.

Third class comprises the Durham or Teeswater; Lincolnshire old, and new Leicester's, and Rumney marsh, in Kent. These are called the long or combing woolled breed, of which the worsted stuffs are manufactured. (See Wool.)

The Devonshire hatts, white and polled; Exmore breed are white, with horns; so are the Dorset's, with wide horns; Somersetshire breed are white, with close horns turning back, they are the highest and longest legged breed in the kingdom. They have the same breed in Wiltshire; it is the whitest and finest grained mutton of all other breeds; a good slice out of the middle

of a boiled leg, with turnips and caper sauce, is a luxury. Hereford breed are white and polled; so are their Archenfield or Ryelands.

A SYNOPSIS OR GENERAL VIEW OF DIFFERENT VARIETIES OF SHEEP.					
	Horned sheep.	Polled or notis.	Wt. of fleece, lbs.	Value per lb. in pence.	Wt. per qr. of sheep.
1 Archenfield,.....	do	2½	36	14	Sht. Herefordshire Ryland
2 Berkshire,.....	do	7	10	18	Long wool, black & white
3 Cheviot Hills ...	do	3	12	16	Sht. Northumberlandshire
4 Cotswold Hills. .	do	9	12	24	Long, Gloucestershire. lgs
5 Cannock Heath..	do	4	16	17	Sht. Staffordsh. grey face &
6 Dartmore Natts..	do	9	10	25	Long, Devonshire.
7 Dorsetshire	do	4	16	18	Short, wide horned.
8 Exmore	do	6	9	16	Long, Devonshire.
9 Foresters	do	3	10	16	Short, dun faces and legs.
10 Do. Herdwick...	do	2½	8	12	do. Cumberland mountains
11 Heath or Foresters	do	3½	6	15	Long, N. hills, dun & blk.
12 Lincolnshire	do	11	11	25	Long.
13 Morf Common, ..	do	1½	36	12	Short speckled, Shropshire
14 Leicestershire ...	do	8	11	22	Long, Dishley or new L.
15 Norfolk	do	3	17	18	Short, black face and legs.
16 Romney Marsh..	do	8	12	22	Long, Kent.
17 Scotch Highlands.	do	2	30	8	White and short.
18 do. do.	do	3	8	11	Long, black face and legs.
19 Shetland Islands,.	do	1½	36	7	Short, speckled.
20 Shropshire	do	3	18	16	Short, black face and legs.
21 Sussex Southdown	do	2½	30	18	Do. grey face and legs.
22 Spanish Merina ..	do	3½	60	14	Do. white & wrinkled noses
23 Teeswater Durham	do	9	11	30	Long wool.
24 Wilts. & Somerset	do	4	18	25	Short and white.
25 Welch,.....	do				

The above table is a near approximation to a fair average for wether sheep; the weight for ewes will be nearly one fourth less; the prices

vary also, according to the merchant's orders for worsted goods, fine or coarse cloth. In the year 1807, I sold Southdown wool at one shilling and ten-pence a pound, and in 1813, at three shillings a pound, from same flock. The lamb's wool, got from one shilling to one and sixpence, at same period. Time of shearing, or clipping, in Sussex, is last week in May and first week in June; washing and shearing, half-a-crown per score, and diet; or five shillings, and shearers find their own diet, which is the best plan, as they seldom are satisfied until drunk, and then they cut the sheep. A good shearer must work well to shear six per hour, when brought to him. A wool-winder will wind four hundred fleeces per day, at one shilling and sixpence per hundred. At the same time, the lambs are clipped and weaned; their fleeces will average nearly one pound. I had fifty Marina sheep, whose fleeces weighed two hundred pounds, in grease, and when manufactured into two pieces of cloth and two pieces of kerseymere, weighed eighty-two pound. Now the lambs are weaned, the ewes will go to heat, or blissem. The rams must be shut up safe in a paddock, and well kept, until time of admission to ewes. In Dorset the time is as soon as ewes pleases;—June, July, or August, except the farmer keep the rams up, on account of winter, or spring feed being short, at water-mead, or tarnips; in Sussex, the general

wine, and if a supuration takes place, lance it and squeeze out the matter that hath gathered, and rub it with neatsfoot oil; fresh lard or fresh butter. Foxes—I have read in the Hampshire Telegraph newspaper, that a with put round the lamb's neck, will secure them from being carried away by this sagacious animal; it must impress some idea upon his mind as did the peeled sticks set up by Jacob at the watering place of his uncle Laban's sheep.—Genesis, 30th and 31th. Next cattle, deer, and sheep, hath no teeth in front of upper jaw; lambs have two broad teeth in front of lower jaw, called damb's teeth; which fall out at a year old, and is called shabing (the teeth; and before shear-time they are succeeded by two more, (see Hogs and Lambs.)—February is the time that sheep shed their teeth, and martinmas is the time lambs' names are changed to tegs. Provincial terms renders a description almost unintelligible, for at the time the rams are put to ewes, the annual arrangement takes place; the cull'd lambs that are rejected as breeders; are termed shots—it is a term applied also to pigs after weaning, until large enough for porkers. The true simple and rational way of reckoning their age and giving names, is this—1st, rennickin lambs; and ewe lambs; after castration, wether lambs and ewe lambs; and when lamb's wool is clipped, the change of name takes place. 2nd, (when grown) wethers, and

and they are served with hay in the fold, they are termed tegs or pugs, unto shear-time. 3rd, when shorn, they are two teeth, or one shear wether, and one shear ewe, until next shear-time. 4th, when shorn, they are four teeth, until next shear-time. 5th, when shorn, they are six teeth, until next shear-time. 6th, when shorn, they are said to be full-mouthed, having their eight teeth, and never hath any more. In Dorsetshire they annually lose a few of their best lambs in April, broken hearted, or blown by running their playful races; when they fall, there is no cure; if the shepherd sees one fall, he cuts its throat, and when baked in a oven is delicate eating; they call these scycer lambs, but if not seen at time, they fall—death is so instantaneous, that the lamb is lost, as it will not bleed, if cut.

Sheep are subject to many casualties and disorders, as braxy, blackwater, fly blows, foot rot, foot halt, giddiness, hunger rot, pelt rot, lice, ticks or cades, shab, scab or rubs, skitts, scour, staggers, shaking, resp, redwater, rickets, rubs, rot, tick and trembling.

First—braxy, resp, and redwater, all one disorder; to cure, by using salt, and frequently driving about, and prevented by giving dry hay at night, when on rape, turnips, and other succulent food—Dr. Dixon. The disorder is discovered by the sheeps' tails and hind quarters

becoming brown, and a red watery jelly is found under the ribs when dead; to prevent, drive the stock when on rape into another field, two or three hours in the night, and middle of the day; disturbing is serviceable only in the night, by making them stale; bleeding in the roof of mouth, and giving each a spoonful of salt and water when going to cole, and bleed every three weeks; give them clover or saintfoin hay.—Lincolnshire agricultural report, by the Secretary to the Board of Agriculture—2oz. bole-amm-niac; 2oz. long pepper; 2oz. stone brimstone, three quarts of brine, three heads of garlic; boil, skim, and drain or strain, then add the drugs and boil again; this will do to drench forty sheep. Another preventative:—half a pint sweet oil; 2oz. rhubarb; 4oz. flours of brimstone; three quarts of strong brine; stir all well together; give to each sheep two table spoonful in the morning, and keep them fasting two hours; keep well stirring the ingredients during the time of drenching—one drenching is sufficient. These are as practised in the Southdowns and other parts of Sussex.

Blackwater, alias black blood. Of this disease the best lambs and sheep die suddenly in autumn, by the succulent pasturage; in less violent attacks, they are seized with a panting and heaving of the flanks; to cure, bleed—turn into a dry pasture—give it common salt, nitre, and bran—Dr. Dixon.

Fly; to prevent, smear with flower of sulphur, lard, butter, or oil: where maggets hath bred, pick them out, and scrape some white lead ceruse from a lump in amongst the wool, and the powder will go down to the wound; if too much is scraped on, it discolours the wool—Dr. Dixon.

No part of a sheep so vulnerable to fly blows, as the top of shoulders, as the sheep cannot defend that part by its feet nor head. No grounds more infested with flies than Stanstead forest, yet no one could have less trouble on account of flies, than my shepherd had, by using the powder as is used by the Southdown flockmasters. (See back to letter F.)

Foot halt, is caused by a worm working from the close of the claws upwards, between the external membranes and the bone, in order to extract the insect; it is only to move the claws in contrary directions, passing each other backwards and forwards, and the worm will come out, which is better than drawing—Lincolnshire complete Grazier.

Foot rot; to cure, clean out the matter from between the claws, and pare off any ragged substance that is on under side, and wash with a strong solution of blue vitriol; it destroys the insects, and dries up the sore. If there is much moisture, use dry vitriol pounded to a powder, and dress every two or three days, and two or three dressings will cure them, however bad

they may be, provided they are kept dry footed, or lodged upon a dry calcarious fallow by night—Sussex shepherd.

Giddy, turn, dunt, staggers, vertigo, stundy, or bladder on the brain; cure, pull the ears, and rub them violently, and then cut them off, or trepan the bladder.—Dr. Dixon.

Hunger rot, and gall-sower, (see skitts.)

Pelt rot is sometimes brought on by scanty keep, cold, wet exposures, sudden change from bad to good keep; sometimes the scab is thus brought on; as soon as discovered separate it from the flock, and anoint the parts affected with lard, tar, and turpentine, made into ointment—Dr. Dixon.

Scab, shab, or ray, alias itch, is generally brought on by long seasons of wet weather; cure, four gallons of beef brine, and one pound of tobacco, boiled together one hour, strain off the liquor, and put it into a stone bottle; then add 2oz. of vitriol, 2oz. precipitate powder, 2oz. verdigris, 2oz. white mercury, 2oz. brimstone, and 3oz. alum, powdered, and when the sheep are to be dressed, stir or shake it well together in the bottle—Southdown shepherd.

Rickets, rubbers, and shakeing, are non-descripts, or a distinction without much difference from blackwater in symptoms and cure.

Rot. Most of the above maladies are but forerunners of a decline, as violent colds caught

by the human species; seizes their victims by the feet, limbs, head, throat, or chest; and if they settle upon the lungs the consequence is rot; consumption or decline, no matter which name, the effect is the same; and more good may be effected by good shepherding, than all the nostrums that can be compounded by doctors or druggists. Thus in wet growing weather, in May and June, (for they are the most dangerous months for producing frothy grass that breeds the rot), remove the sheep out of valleys, on to the hills; at other times, when wet and cold; if there are no sheep cot yard to lodge them in, put them by night upon the driest ground you have, and give them good hay in the fold. Some are of opinion that to pasture sheep among horses; they get the rot, by eating the foim grass that grows near the horses' droppings. Water-meads are healthy for sheep in spring, but will rot them in the autumn. Rot caused by an insect, taken in with the grass—Bath paper says: Keep the sheep in the fold until the dew is off the grass, and you will never have the rot amongst them, says the Lincolnshire Reporter. Cure when you perceive the disorder in their eyes; take a handful of rue, steep it in a pail of water all night, and in the morning put in as much salt as will make it swim an egg, and give each sheep half a pint of the liquor, every other morning, three times—Hertfordshire Agricultural Dictionary.

Cure, 60 grains of iron filings in a flour ball, seven mornings, with salt occasionally : perhaps it might be better to give the balls more than a week, and diminish the quantity—Farmer's Calendar. This puts me in mind of a recipe given me for a cow I had the misfortune to have in the same complaint, that was, to give her one pound of horse-shoe stubs ; as I had not faith to try the proscription, I called in a cow-leech ; he said if he did not cure her he would make no charge ; I sold him the cow for three pounds, he took her home, but he did no cure. It is above stated, the rot is caused by an insect, but it don't specify what insect, or how it effects the destruction, neither are we informed in what part this mischievous little insect secrets itself, so as to cause a general dissolution of the whole frame. Stanstead park is between six and seven hundred acres dry down land, with no other water besides three ponds of stagnant water, and they totally dry every three or four years, and every summer so low, that one can scarcely determine whether the red insects or water occupies most room. The sheep here is subject to a liver complaint, first symptoms are discoverable by the above maladies, as redwater, &c. We used to kill from fifty to seventy annually, for use of family, and about one in seven used to be affected in the liver by what are termed flukes, there : it is a leech, hirudo, hirundine, found on hills and in water.

These flukes or flounders, used to be from three to seven about the liver, and each one inch long, a quarter of an inch broad, and as thin and colour of your finger nails; this is termed the rot in Sussex. Can these leeches be the insect alluded to by the Bath Agricultural Society? if so, how do they get out of the stomach to the liver; perhaps when in the spawn state are taken into the sheep's mouth. There may be a possibility of some accidentally gliding down the windpipe to the liver, or do they breed there? Conjecture is a species of eloquence I dare not indulge in, as I always consider it to be fraught with fiction. An infallible cure, which I learned above forty years since, at Sir Rowland Winn's, Nostell Hall, Yorkshire. I never knowed it to fail. The shepherd was the butcher, also: he was one day relating how some of his fat sheep were affected with the rot; an old man, that used to be much amongst the tenants, buying poultry, eggs, and butter, for housekeeper, (he had the care of Cupola clock, and also was *Mr. Amen*, at church, on Sundays,) this said *Amen*, alias Samuel Clark, heard the butcher's complaint, and told him he could make them sound; the butcher treated the old man cavalierly, and offered a wager of one shilling, that the sheep could not be made sound; the old man accepted the challenge. The sheep were drove into the churchyard, for convenience of catching, and the but-

cher having caught one, which he considered incurable; the old man desired him to turn it up, he then handled it, thrust his fingers under the eye-lid, and gave the butcher credit for his judgment; then, with his open hand, he gave an unmerciful stroke on the sheep's belly, crying out, now, Thomas, don't you hear it *sound*; and to prevent a relapse, kill it. I cannot describe the difference that appeared, when contrasted with the distorted features of Thomas, the butcher, and those of the bystanders.

Skitts in lambs; alias, white scower; alias, green scower. Both are cured by a decoction of chalk, and hartshorn shavings, with a small proportion of tincture of opium. This disorder goes by the name of gall scower, also;—Dr. Dixon. (See White Scower.)

Smearing sheep, I suspect originated from *Extreme Uncction*. The smearing, in vale of Blackmore, on north of Dorsetshire chalk hills, takes place in summer; and I suppose they give a body to the unction, by adding red ochre, as the flocks appears at a distance like herds of bucks and does. On the Yorkshire hills, the smearing is performed in autumn, with butter only, as manure to make the wool grow. Some uses butter and tar, oil, and tallow, juice of bitter herbs, &c. Some smears at shear time, others in the autumn. Some says the smearing is to kill the sheep lice, ticks, or cades; others says it is to keep out

the wst. All these good preventives are lost sight of in some districts, and the efficacy of smearing, is to keep out braxy, shab, and scab: no account of rot and redwater being prevented by it yet; tick, alias louse, alias cades, *Hippoboscæ Ovina*, of Buffon. In Scotland they mix 12lb. of butter with four quarts of tar, for twenty-four sheep, and smears in October or November — Dr. Dixon. Our northern friends hath mistaken the description of new forest flie, (*Hippoboscæ Equina*) for the sheep tick (*Acarus Reduvius*); butter and brimstone kills it.

No	Sheep, lbs. weight.	Length.	Girth.	Weight of blood.	Entrails.	Skin.	Head.	Pluck.	Shoulders.	Necks.	Breasts.	Loins.	Legs.	4 Quarters.	Tallow.
1	38	40	5	15	14	5	5	18	15	9	20	22	84	9 lb.	
2	43	43	5	15½	14	5½	5	19½	16½	10½	22½	25	94	9½ do	
3			5	14	15	6	6	33	27	17	36	46	159	25 do	
4			5	17½	21½	6	6	36	30	18	40	50	174	24 do	
5	30	33½	5	12	10	4½	5	13	11	6½	14	16½	61		
6	30	33	5	12	9	4½	5	14	12	8	15½	19½	69		
7	61	63½	5½	16½	10	5	5½	14	16½	8½	14	21	74	14 do	
8	48	56						64	54	32	60	80	290		
9								24	20	12	26	30	112		
10	21	24	5	16	12	5	5	17½	14	9	18	20	76½		
11								24	21½	12	24	29	110½	14½ do	
12	31	32						14½	12	7½	12	18	63½	7½ do	
13	30	32						16	13½	8	13½	19	70	12 do	
14		4½				5	5	32	27	16	27	38	140	17½ do	

No. 1 and 2 in the above table, were Gloucestershire sheep.

No. 3 and 4 were Leicestershire; 5 and 6, Southdown; so were No. 7.

No. 8 was a Lincolnshire four tooth wether; No. 9, Northants; No. 10, Dorsetshire; No. 11 and 12, both of Cheviot hills breed; No. 13 was a forester, and No. 14 new Leicester breed. When the fat is taken out of loins, the loins then will be same weight of necks. Heads of sheep weighs from four to six pounds, and all the bones in the four quarters will be nearly same weight of head; the blanks in table shews the necessity of giving dimensions as well as weights, and age in proper terms, and not as recorded from the Smithfield cattle show, 12th December, 1818. Thus Earl of Bridgewater sent a Southdown sheep that was estimated at forty stone, but no specification as to length, girt, age, or sex. Again, a two shear Warwickshire wether; got by a Lincolnshire ram, carcase and head 244lb., skin 30lb., loose fat 30lb.; the head had no right to be weighed with the quarters. 17th January, 1820, Oxfordshire sheep, carcase weighed 254lb., 80s. were bid and refused for one shoulder. Now by inspecting the above table, it could not weigh 30lb. Again, in Farmer's Journal, 8th Nov. 1819, a shear hog ram of the new Leicester breed, weight 19 stone of 16lb; it don't say if one or two shear, dead or alive; and I wish the term hog was confined to the swine, and then it might have stood thus, a 2 or 4 (which ever it

was) tooth ram, &c. A Leicester sheep killed at Birmingham, live weight 280lb., four quarters 200lb. fat on back $8\frac{1}{2}$ inches thick. How interesting the account of these fine animals would be, if given agreeable to the table, and would reflect much credit to the reporter's abilities. Another sloven informs us, that Teeswater sheep weighs 8 stone per quarter, and Grampian hill sheep 8 pound; again, a wedder sheep, live weight 350lb., four quarters 220lb. tallow 33lb. A Norfolk sheep, whose four quarters weighed 94lbs., and the bones being saved as consumption took place, when all collected, weighed 4lb. 10oz. The reporters need only to just open the lips of sheep, to see how many teeth it hath: next take the length from horn or poll to hips, and girth of breast close to forelegs, and his report furnishes at once both age and live weight. Sheep skins, when shorn, from April to August, are worth from sixpence to one shilling. In December, the wool is worth half a fleece. The proportional weight of offal may be ascertained by inspecting the table: value of offal equal to three pound of mutton, thus—head, one; pluck or strap, two; (skin is not reckoned); and mutton now, as first, legs, 7d.; second, loins, best end, 8d.; third, chump end of loins, 7d.; fourth, necks, best end, 8d.; fifth, scrag end of necks, 6d.; sixth, shoulders, 6d.; seventh, breasts, 5d. head, 4d.; pluck, 12d.

2 loins dressed in one joint is called a chine, at 7d.
2 necks in one is called a saddle of mutton, 7d.

SINGLE, or tail of a hart, buck, stag, and other deer.

SILTING, alias warping of land, as is done in Egypt by the floods of river Nile: is performed in Yorkshire and Lincolnshire near the Humber Estuary, by the conflicting power of the tides meeting the rivers Ouse, Dun, Trent, Calder, Aire, &c., raises such quantities of mud, alias silt or warp; this is let in upon the land with the tides, and will on going off, leave half an inch in depth. Oats hath been sown upon it, without plowing, that produced 118 bushels per acre.

SINOVIA, joint oil. It strikes me that from some defect in the animal juices, too much of the calcareous matter is extracted from the bones into the joints—hence chalk stones in gouty people's fingers. (See Joint Oil.)

SLATE. Yorkshire stone slate, at one inch thick, laid on double, and allow one-eighth more for lap or bond, takes 24cwt. to slate one square of 100 feet, but 20cwt. will do when the slates are broad and good, proved by my own barn slateing, as I bought them by the ton.

14cwt. of plane tiles will cover a square of tileing.

7cwt. of Westmoreland slate per square.

7cwt. of lead, at 8lb. per foot, exclusive of laps and solder.

1cwt. of copper, at 18 ounces per foot, each sheet forty-eight inches long and twenty-four broad, weight 10lb.

SLOT, or footmarks of a hart.

SMUT in wheat, proved to be an insect: granted—so is canker, rust, and mildew, but they are all bred by disease and poverty, as vermin on cattle; and to attribute the cause to the seed is as absurd, as blaming the male that got the stock that are lousy. Harsh calcarious clays are more subject to grow smutty wheat, than any soil that I am acquainted with; but the critical moment of blooming, hath more to do with smut than either seed or soil, just as fruit trees are injured in blooming, and produces imperfect fruit. And what is blacks, alias trucks, in wheat, but imperfect fruit. Burnt corns, by the French called carbon; they are smut balls of a firmer texture. Oats and oat-grass is subject to smut. Sir John Call, of Devonshire, was of opinion that smutty seed was not the cause of smutty wheat, or how comes there to be good grains in a smutty ear?—see Bath papers, ninth volume. It is confidently stated, in second volume of Scotch Agricultural Magazine, that washing in pure

water, without brining, is efficacious ;—page 155, signed A. Z. We have too many of these anonymous printed. Kiln drying, also steaming, is recommended; they are dangerous operations. As another proof of the malady being in the seed, it is asserted that the smut is discovered in the sheath, or spatha, before the ear shot out; this is no proof, for had the investigator searched deeper, he would have discovered that the stem had been perforated by some insect; or that the epidermis, or skin of roots, were eat off: perhaps by the wireworm; I have found it so. The year 1806 was as good a wheat year as ever was known in this country; and in autumn, I bought the best and whitest seed wheat that was in Chichester market; it was grown near Medhurst, upon a fine sandy loam, and being only three miles from the sea, I procured sea water, to brine or steep the seed wheat in; not that I had any faith in steeps, but because I would wear a coat of same colour and cut as other people generally wore: the result was, more smut, more trucks, blacks, alias burnt corn, or carbon wheat, as the French calls it, than I ever saw any where else; and when thrashed, I filled a cube inch box, from chaff heap, before it was winnowed, and there was thirteen trucks, or blacks, in one inch, thus taken up, and on counting the whole, I found one hundred and thirty grains, so that the blacks composed one tenth of the whole, which

reduced the weight of a load of forty bushels, 120lb., and forty shillings in value :—prices then, twenty pound, and nine eighteen. In October, 1807 I gave the seed-furrow to a thirty acre field, and well screened some of the above wheat for seed: brined and skimmed off the blacks and light corn; having got twenty acres of the best end of field sown, I was interrupted by bad health and bad weather, until December, before I could sow the remaining ten acres; and when the seed was winnowed, I found the quantity so short, and weather precarious, that I mixed the former screenings and skimmings with the new winnowed seed, and had it sown without brining, wetting, or liming. The whole crop was good and clean; nor could I discover any difference between the quality of ten and twenty acres. This is no garden experiment; yet it is not decisive; it remains for some one, whose land is subject to produce smutty wheat, to sow one half of the same field with dry seed from the granary, and the other half of field with brine steeped, and limed seed; and repeat the experiments on various farms, for seven years, and I dare venture to predict, that when either by smut or trucks appears that both sides of the field will be equally affected; there must be a cause, where there is an effect. The cause of mine being so bad, could not be in the seed, it was so delicately clean, and almost as white as rice.

The cause could not be in the weather, if it had, my neighbours must have suffered also ; therefore the cause must be either in the soil, or in the management of it. I entered upon the farm in June, 1806, and found the old two wheeled heavy plows. A conceited bailiff, and idle plowmen, who plowed deep enough under the belt of the plow through necessity on land side, in order to keep the share under ground, but left the ground unmoved under the sole of the plow, so that the bottom of furrows formed the same kind of ridges, as the furrow plitts forms on a well plowed field of old ley. They never plowed deeper, nor at time of fallowing did they ever cross plow. Fine dry sunny weather, is best weather for wheat to bloom in, when ground is properly tilled ; but wheat upon these underground ridges, under such stubborn flinty harsh land, that in a dry summer the plants that stood upon the tips of these subterraneous ridges were so much exhausted at blooming season, as to be the cause of one-tenth of the grain to be thus deformed. I parted with the bailiff, plows, and plowmen, and introduced the swing plows ; and by well plowing the land, I had neither smut or trucks after.

SMEARING sheep, in Scotland, is done with ewe milk butter, made from weaning time to middle of August. (See Sheep.)

SNEE, is snot, or fat of deer.

SOABRTH, or soerth, as meant of a hare; when she is running in or on the open field, she soerth.

SORR; a male fallow deer of third year, or spike buck.

SOBEL; a Do. of fourth year.

SOAP ashes: thirty-two cube feet, one ton: Rristol in London, in the year 1805, was four shillings and sixpence per ton.

SOIL, or staple of earth, is the upper stratum, and is the object of cultivation; and that below is termed subsoil. A good criterion by which the staple or surface earth is to be known by, is its natural productions, as herbage, rushes, and heath. It frequently happens that first grass is growing in or near heaths, which proves the subsoil is better than the surface. Argill and sand constitutes most soils. Argil is the rich soft marl; sand mixed with it composes most sorts of earths, and are named according to the quantity of sand therein. 1st, clay, is argil and sand. 2nd, loam, is argil and a greater proportion of sand; till is always found on north aspects, and generally stony; it is a

bad kind of stony pipe clay, and of all soils it is the worst wet or dry. Argil is the base of vegetables; consequently vegetable mould peat and bog: also of magnesian and calcarious or metallic limestone; silica or sand; selenite or crystals; from and with these are compounded our earths, stones, flints, chalk and lime, silicious or calcarious. Stony, is termed calcarious; clay marles and loams, argillaceous; and sandy earth or stone, silicious; so that what is not argillaceous, must be calcarious; and most calcarious substances when decomposed by weather, returns or moulders down to its original primitive state of argil again, and by the action of air and water, becomes a new substance of some kind of a calcarious nature, by transition. There is no such thing in Nature's laboratory as stones growing. (See Earths and Soils in my Treatise on Forest Trees, alias Dendrologia.)

SOUP, and other cheap dishes, as recommended by the Board of Agriculture in the years of scarcity, 1796 to 1801:—

1st, macaroni: beat up eggs, but not to a froth; add as much fine flour as will make it into a dough or paste; roll it into thin cakes or leaves, and lay ten or twelve in thickness; then cut them into threads, which if of a proper consistency, will not stick together, and are to be dried in the air on a clean board or

paper. It is eaten with milk instead of bread, or with chicken broth; at tables of luxury, cheese is added after boiling the maccaroni, to give it a relish.

2nd, potatoes, to boil; sort them so as to be nearly of same size; wash them clean; put them on the fire in cold water, and when they boil add a little cold water, and repeat it till the potatoes are boiled enough, which may be known by a fork, and by preventing their boiling too hastily you prevent their cracking, and when boiled to the heart, pour off the water, and set them over the fire again to evaporate the remaining moisture. (See Potatoes.)

3rd, potatoe pudding. Boil the potatoes as above; peel, and break them; add one-fifteenth of their weight in milk; one-twentieth of suet; one-fifteenth of flour; all mixed, then baked.

4th, 12oz. potatoes, 1oz. suet, 1oz. cheese, 1oz. of milk, mixed with boiling water, and baked in an earthen pan.

5th, 12oz. potatoes, 1oz. of milk, 1oz. of suet, with a little salt, mixed with boiling water, and baked in a pan.

6th, 12oz. potatoes, 1oz. suet, 1oz. red herring pounded fine in a mortar; mixed as before, and baked.

7th, 12oz. potatoes; 1oz. suet, 1oz. hang beef grated, then mixed and baked as before.

Potatoes should always be boiled with their skins on, and if of a heavy or waxy nature, boil a knob of lime, size of a walnut, to make them light or mealy.

8th, cheap soup: one gallon of water, 20oz. of barley meal boiled to a thick jelly; add pepper, salt, vinegar, sweet herbs, and half an ounce of pounded red herring, and eat it with bread.

Grated cheese, grated hung beef, pounded herring, &c. might be very advantageously introduced into many insipid meals, and make them both palatable and nourishing, particularly gruels.

9th, thirty gallons of water, one lean sheep of thirty pound weight, one peck of potatoes, half a peck of onions, half a peck of pease, a peck of carrots, a peck of turnips, six pound of pearl barley, rice or barley meal, and pepper, with salt, distributed to the poor, which was gratefully received by all, and fetched at five miles distance, in Scotland.

SOWING. There are a great variety of drill machines, and it behoves the farmer to make himself acquainted with them before he buys, so as to have one adapted to his land; for none of them is adapted for all soils. A good seedman will sow an acre of any sort of seed broad cast in forty minutes, and of small seeds twice as

within the hour. When land is light, or made so by a fine tilth, it is good husbandry to sow broad cast, and plow in the seed with an ebb or shallow furrow, particularly where the land abounds with seeds of weeds, as charlock corn, crow-foot, and other noxious annuals; by hoeing the interspaces, and hand-weeding the lines, such weeds may be extirpated.

SPAY; to castrate female animals.

SPAYAD, spayed or spitter; red male deer of third year.

SPIKE roller, invented at York, for breaking rough fallows: over the frame is fixed an axle-tree, on which are put a pair of low wheels, the shafts being lifted and turned over the wheels, are under and roller above; thus it is drawn to and from the field, (see Roller) by Mr. Bandal, York.

SPRING-REED. No one article in the whole cycle of agriculture requires the farmer's attention more than that of providing of spring feed for sheep, namely English and Sweet turnips, mangel-worzel, purple turnip of Hungary, cabbages, rape, water meadow, tares sown in autumn, also rye; and in elevated more and mountain districts, potatoes, Lapland and Siberian turnip

rooted cabbage, Scotch cale, alias green curled cole, Brussel's sprouts, heath, broom, and furze.

SPRING wheat is a species of white strawed, white early wheat, obtained from Sicily and other southern parts of Europe.

SQUIRREL'S dray or nest.

SPRINTS, or spraints; the dung of an otter.

STAGGARD; a male red deer of fourth year; stag, fifth; and a hart the sixth year.

STERN; the tail of a wolf or dog.

STOCK. In the general acceptation of the word, means any kind of cattle kept upon a farm, particularly neat cattle. A good bull is said to get good stock. To know how to buy good stock can only be learnt by practice; as to symmetry or proportion the length ought to be nearly the same as girt, measuring from poll or front of ears to hips, and girt at breast close to forelegs; with straight back, loose silky looking coat and hide, head well proportioned, and good eyes; such stock will fatten so as the offal will not weigh one-third of the live weight when well fatted; but in coarse animals the offal will weigh as much as the carcase or four quarters; (for

their proportions, see tables of fat stock weighed.) Any animal with a narrow chest, will never expand so as to fatten to the same weight as one of same length with a wide chest. When animals are out of proportion short, they fat quickly, but fail in weight, and produces too much fat in proportion to the lean; on the other hand, if the animal is longer than common in proportion to its girth, it will be long in getting fat. A bullock with all the above good qualities, and quarters fleshy down into the hocks, bought in half thick; alias half fat, in August or September, may be fattened off by christmas.

STRIPING, flaying, caseing; the hare and rabbit is striped or cased, so is a boar, and all sort of vermin, as fox, badger, otter, &c.

STACKS, or mows. An acre of good wheat sheaves, will (require 69 cube yards of barn room,) weight 7200lb.; straw, when thrashed and trussed weighed 6400lb.; wheat weighed 1850lb.; waste, 450lb. An acre of hay, that will weigh in the spring months 5000lb. will require 40 cube yards of room to stack it; and by February, it will be shrunk to 25. This is to be understood of one to four or five acres; the greater the quantity, the less room per acre will be required, on account of weight and heating; so that 5000lb. of hay may be found compressed

into the area of fifteen yards; (see Hicks.) Clover ricks, if well managed in the field, so as to heat properly in the rick, will cut out nine yards to a statute load, of eighteen cwt., in course ten yards one ton, as hay, in the country, is always sold by ton. There should be an iron rod, ten feet long, with a large ring at one end, pointed and barbed at other end; and when a stack of hay is suspected of over heating, the rod should be thrust into the centre of rick, and so long as the rod sticks fast, there is no danger; but if the rod draws a little and then holds, the rick is burnt at centre. The barb must be strong, to prevent breaking; and if more than one inch long, it will require a horse to draw it out, and the hay it brings out, will shew the state of hay, as far in as the rod entered.

STACK, or stack of corn, is twelve sheaves, set up to dry.

STONE ; its weight, per cube foot, in pounds.	
1st. Oakworth More dry clough freestone)	lbs
1st. Keighley, Yorkshire.....	144
2nd. Hamhill sand stone, Dorsetshire	150
3rd. Yorkshire stone, in block, pavior, and slate.....	152
4th. Portland Island freestone	160
5th. Westmoreland slate, and earthfast, Yorkshire flints	163

6th. Cheshire granite, quartz and common flint	lbs 165
7th. Plymouth Rock, Penwrith, and Craven Limestone	166
8th. Grey rag; pebbles, red and black; shalebind, or stonebreeder	167
9th. Blue rag, Aberdeen granite and marble	169
10th. Blue win stone,	172
11th. Purple slate	174
12th. Elland-edge Akerspire,	176
13th. Derbyshire Toadstone,	188
14th. Basaltos,	184
15th. Gurnsey Pebble,	187

STRAW; thirty-six truss, one statute load; each truss to weigh thirty-six pound, that is, 1296lb. per load; and the straw not says the middle of each truss to be as good as the outside; hence the origin of drawing one handful of good straight straw into the centre, whilst open; all round this is the short stuff, commonly called the guts, and is cased over with good straw.

600 wheat sheaves, weight twelve pounds each, grown upon an acre. Gross weight 7200lb.

Produced 30 bushels of wheat, at 58lb. per bushel, 1740lb.
 of clean wheat 3 loads, and 5 truss of straw, 4068lb.
 marketable straw, chaff or wheat hulls, 150lb.
 waste in thrashing, and loss in drying, ... 1242lb.

Proof, 7200lb.

The above sheaves was tight bound, and measured three feet girt at band, and on measuring the mough in barn, proved there were eight and half a sheaf in every cube yard, or 69 cube yards per acre. A nice little average crop, on a calcarious soil, 380 sheaves per acre, will not cube above 30 yards, and will produce 24 bushels of wheat. Where wheat is well shorn, one-third of straw is left as stubble; and where shorn high, one half at least in weight is left. The above straw sold in Smithfield market, at per load, £2.

Oats: a fair average crop, four feet high, shorn so that the stubble was left one foot high, 1000 sheaves of 5lb. each, or 5000lb. gross per acre, gave 89 bushels, at 39lb. per bushel.

1521lb. of oats: this crop cubed thirty-nine yards:

3479lb. of straw, chaff and dust. Value on Yorkshire mores three-pence a stone of 14lb. or sixteen-pence a threave.

Barley: straw being soft, packs close so as not to cube so much as oats, yet I have known 59 cube yards per acre, and when thrashed, produced one truss of straw, weight 36lb. per rod, viz. 4½ load per acre, sold for £4 14s. 6d. (See Barley in letter B, for the said crop.) I have grown barley upon a calcarious chalky soil, the straw so fine, that the crop cubed only twenty-one and a half yards per acre, and when thrashed,

there was thirty-four bushels of excellent matting barley, bright and fine grained, viz. 680 bushel from twenty acres. This sort of land averages twenty-one yards cube of mown barley or oats, in the straw, and sixteen yards of wheat in sheaves; and if a wet summer, more straw and less corn. (See letter T, Trussing.)

STRAW-YARD. One shilling and sixpence per week is considered a great price to pay for wintering dry cows and two-year old steers; but it is only about half of what it ought to be, as such stock will be worth three or four pound more at May-day, than they were at Michaelmas. Oat chaff is apt to blow into the eyes of cattle in the straw yard; when observed, the animal should be so confined that the eye lashes may be held open, while another person draws a barle ane over the chaff, and it will bring it off. I once had a horse blind on one eye by oat chaff, causing a film to cover the eye; I got some best refined loaf-sugar, reduced to powder, and a goose quill barrel cut open at both ends; then put the sugar in my mouth, and blowed it through the quill into the eye, repeating the operation for a few days, and the film disappeared. Cattle at straw should have, daily, a few potatoes, turnips, mangel-worzel, or parsnips, to keep them healthy, were it only one pound per head per day. We are informed by the Agricultural

Magazine, that 330lb. of wheat straw is worth nine shillings, that is nearly thirty-six shillings for one of our London loads, which was in 1810, seventy shillings, average of nine years fifty shillings. The same author writes, that the straw that produces a quarter of oats, is worth five shillings; and straw that produces one quarter of barley, is worth three shillings; also the straw that produces a quarter of pease, is worth ten shillings. I have no doubt but that the above is a just statement where the writer was, in Scotland: now as land, climate, with locality of markets, varies so much, these data are not oftence applicable, as proved by the above crop of wheat, being under four quarter of wheat, and above three load of straw; that is, seventeen cube yards of mough, or stack, to a quarter of wheat; ten cube yards of mow will produce a quarter of wheat, when grown upon a calcarious soil. Oats, a good crop, on same farm, gave thirty-two cube yards in mough; and forty-four bushels of oats, on Sussex chalk, and oats were mown. Another crop in Yorkshire, shorn with sickles; they stood four feet high; the stubble after shearing was one foot high; 1120 sheaves, of 5 pound each, per acre; viz. 5600lb. of corn and straw, and produced 48 bushel, of 40 pound each; 1920lb. of clean corn. Now at the above statement of five shillings for straw, that produced one quarter of oats, is thirty shillings per

acre. Twenty-four sheaves to a threave, gives forty-six threave, at one shilling per threave, is £2 6s. 0d., and the common price here, is fifteen to eighteen-pence. Another writer for the above quoted Magazine, says, for every bushel of corn, the straw is worth one shilling and eight-pence; a third writer says, the produce was corn for straw: if I understand him, he means the corn were as heavy as the straw; but he do not say whether the oats were shorn or mown, or if the corn and straw were weighed together, and corn after; or that the clean marketable straw weighed as much as the corn: if so, how much in weight was thrown out of the barn, in dressing with the caving, or chafingrake, and riddle. I have had 650lb. of straw only from twenty-four bushel oats; weight 840lb.; and 909lb. of straw from twenty-four bushel, that weighed 864lb. Early sowing, and a dry summer, contrasted with late sowing, and wet warm summer, renders all these experiments of no use, even on same land, farther than the present crop. Barley, in field, weighed 10,080lb., in August; and in October, 9,738lb. produced 50 bushel barley, of 48lb. per bushel, is 2,400lb., and 5,760lb. of straw, trussed; viz. 160 truss per acre, besides 1,640lb. of anes, chaff, and waste: now three shillings per quarter of barley, for straw, as per Magazine, would be eighteen shillings and nine-pence for the acre of straw, which I sold at half price of wheat straw

at the time ; viz. twenty-one shillings per load, of 36 truss, gave four pound, thirteen and four-pence per acre, viz. four pounds of straw for one penny. On a calcarious soil, a twenty acre field gave twenty loads of barley, in straw, of 24 yards per load, or acre, and 84 bushels of prime barley; and the bulk of the above great crop was 59 cube yards per acre.

SUBBOYS; any thing fit for browse, or shelter for deer.

STUBBLES, of wheat and beans should always be grubbed up with the scuffler or cultivator, after harvest; then harrowed and raked together to be carted to the farm-yard, and there spread. This is going a great way towards extirpating annual weeds, and increasing the stock of manure.

SULPHUR, is as useful to mix with hog's victuals, as salt is to other farm cattle.

SURCHARGE of the forest; one who turns out more stock than he hath a right to do.

SWIMMERS; the horny substance on horses' legs:

TAILS. (See Single, Brush, Drag, Stern, Seat, and Wreath.)

TABLES, or Grazier's Ready Reckoner. (See Weight of Stock.)

TANING; in north of Scotland, done with heath instead of bark : so powerful is the water of peaty heathy mores, that it extracted the nature of leather out of a pair of good shoes for me, in two days, on Northumberland mores, so that I left them on 17th Oct., 1817, at Glanton.

TAR, vegetable ; from Denmark, Sweden, or Russia, is the best of all balsams, as a salve for cuts and other green wounds in all animals and trees ; it may be bought at Liverpool, now, 1826, for twelve or thirteen shillings a barrel ; this or the mineral, alias coal tar, makes the cheapest and most permanent paint for out of door work, and may be coloured with clay, oven dried and powdered ; it is then yellow ochre, to be boiled in the tar, which forms a body or coating upon the wood, impenetrable to sun and wet ; it is also an agreeable colour to behold.

TARES, (*vicia sativa*). Winter tare, weight 62lb. per bushel, and two hundred seeds per cubic inch. Sow two bushels per acre, if for hay ; and three bushels, if to be mown green for soiling. Fifteen ton an average crop of green tares per acre, worth eight shillings per ton, and if cut and dried for hay when the seed pods

are slated, viz. got to their full length, the tares will shrink in weight to three ton; the tares are not to be spread, but swaths turned, cocked, &c. When suffered to stand for seed, the haulm or straw is of but little value; the seed is rounder and blacker than lentils; 30 to 40 bushels per acre a fair average produce. I know of no difference in the use or value between tares and lentils, besides that of an earlier bite. When winter tares are sown for spring feed, sow a little winter rye and rapeseed with them in August, and the whole will be ready for ewes and lambs in April and May; if in Yorkshire hills, June; this is a good preparation for barley. When intended to be mown for soiling, sow in September, October, or November, and they will be cleared off in June and July, in time for turnips; and if suffered to stand for seed, they are as good a preparation for wheat. Never sow winter tares after Christmas. In February or March sow spring tares, and top dress winter tares with malt combs, soot, or rape dust. I sowed lentils on Yorkshire hills on 7th May; they were up on 4th June; and bloomed on 4th of August, and from that time they afforded a good daily supply into October, for my milch cows. Break up old clover leys in June, and sow lentils a little rapeseed and summer rye for autumn feed; and if for soiling, that is bringing the produce home to be consumed, mow all together, and cut them;

home dilly. Where land is tired of red clover, tares and lentils are an excellent substitute; they are sometimes plowed in as a manure, and in order to bury them, a false coulter of wood is fixed perpendicular to land side of plow beam, before the coulter, which separates the tares, and keeps the coulter free.

TEASELS, (*dipsacus* var *sativus*) are biennials; they are grown solely for the use of cloth dressers. One peck of seed, sown in drills at twelve to fifteen inches apart in April, to be kept clean all summer; and in winter the interspaces are to be plowed or dug in June, and July following they will bloom, and as soon as the best heads have bloomed, they are to be cut in August, and by latter end of September they will have produced three gatherings, which must be dried and moughed close in pile in a dry room to sweat, which renders them flexible and elastic; they are then sorted into three classes, denominated—kings, middleings, and scrubs, altogether from forty to sixty shillings a pack, average seventeen pounds per acre, value on 16th March, 1820. I saw two large fields, part of the recently inclosed Brumham more, under teasel plants, which looked like a field of newly hoed turnips; the soil sandy, calcareous, upon a substrate of magnesian limestone; the ground was so clean, and plants although neither in rank or file, were to

regular as to distance, that I suspected they had been transplanted from seed-bed the preceding autumn or early in spring.

TEG, is a sheep rising two years old, as ewe; wether, and ram tugs; two tooth, or one shear hog.

THATCHING, in Dorsetshire, with wheat straw reed; the reed sheaves three feet long, three feet girt, weight fourteen pounds; 100 sheaves worth forty shillings, will cover three squares of thatching, viz. four hundred weight per square. Thatchers' wages, four shillings per square. In bad harvests, the reed hath sold for six shillings per cwt.; in October, 1810, it was 3s. 2d.

Thatching, in Somersetshire, near Bath, sheaves thirty-three pounds each, at one shilling per sheaf, or 3s. 5d. per cwt., and thatchers' wages six shillings per square. Spars, or pickers, laths, or hedgers, and roap yarn, or tar twine, will be wanting.

In Northamptonshire, they mow wheat stubble to thatch with; ricks, or stacks, thatching varies much, but where well done, the prices are from twelve to eighteen pence per square of 100 feet. Some takes the length of eaves on one side at from sixpence to one shilling per yard according to width of rick, and for round ricks measured

the whole circumference in feet, and half of distance from eaves to top multiplied into the circumference, then divided by 100 gives the contents in squares. Suppose circumference 80 feet, and from eaves to apex 20 feet, half is 10 multiplied by 80 is equal to 800, and divided by 100 gives eight squares of thatching.

THEAVES; sheep rising three year old, male or female, two shear hog or four tooth ewe or wether.

THRASHING. The heavy crop of barley described under the head Barley, the thrasher was 14½ days thrashing and tying up 194 truss of straw; at two-pence per truss of 38lb.; two pound being allowed for drying in and bands, viz. five loads and fourteen trusses produced six quarters of barley, 194 multiplied by 38 is equal to 7372lb. of straw: 48 bushels barley, at 48lb., is 2304lb.; or 3lb. of straw to one of corn: ones and waste 104lb.; the sheaves weighed in the field, in August, ten pound each, and in October only eight and three quarters. The waste seems but little in or for one acre of sixty cube yards, which shows the effect of thrashing by the truss. The calculation was made by the thirty rod, shown; but the above is from where from barley mown by scythes, straw trussed, and barley measured and weighed; the waste was not weighed, but in

course would be more than from sheaves; but allow it to be equal, the result will be straw 7372, added to 2304 of corn, will be 9676lb., added to 1546lb. of waste, anes, chaff, &c., total 11,222lb. which gains 1267lb., or one load of straw by mowing, more than by shearing, although the shearer was obliged to cut low on account of the crop lying so close to the ground, and grown through with black bindweed. From fifteen cube yards of mough per acre, on chalk land, I had thirty-four bushels of barley, and same farm and same year, from twenty-one cube yards of mough per acre, I had forty-three bushels of barley, on Sussex chalky land; and the following was in Buckinghamshire sandy loam—a rick of barley, contents 171 cube yards, produced 323 bushels of barley; thrashed in 6½ days by three horse thrashing machine; winnowed and measured by two women and winnowing machine in 6 days.

Wheat crop, as stated under letter S, grown in rich marsh land, but mildewed, gross crop per acre 69 cube yards, weighed 7200lb., produced three load and five truss of straw, 4068lb. per acre; thrashed at three-pence halfpenny per truss. For thrashing, winnowing, and trussing, at Greenwich, in Kent, 8s. 6d. per quarter. Wheat mown and taken up, produced 329 sheaves, cubed 21 yards per acre on waggons, and when moughed in barn only 16½ yards, and

produced 17 bushels of wheat on chalk land, thrashed at 2s. 8d. per quarter—Sussex, bordering on Hampshire. Wheat, on said Sussex farm, in the dry summer of 1806, 320 sheaves per acre, 120 of them weighed, in February, 1807, eleven hundred and twelve pounds; total crop 2965lb., gave 20½ bushels of wheat, that weighed 1223lb., straw trussed 1444lb., and hulls with waste 298lb.; measured in mough 18 cube yards, thrashed at 6d. per bushel. On same farm, in year 1811, a blighty season, so that fourteen acres produced only 74 bushels of wheat, and took two men forty and half days to thrash it, at 2s. per day—£8 2s. 0d., viz. two shillings and three-pence per bushel, for thrashing. Same year, on same farm, I had another field, 13A. 1r. 20p., a famous crop to look at, and at harvest it were moughed in a barn regularly, from the field beginning at one side and finishing at the other, and the thrashing done by day at 2s.

£. s. d.

1000 sheaves produced 10 bushels, cost	0	16	0
0840 Do. 24 Do.	1	16	0
1840 Do. 34 Do.	4	5	0
1620 Do. 62 Do.	2	1	0
2800 Do. 80 Do.	2	7	0

Five hundred and forty-six sheaves per acre, and cubed thirty yards; when this wheat was ripe, it stood five feet high. The different lots shews how partial *Mr. Blight* is, also how pernicious

woods are to arable land, as the first lot of ten bushels grewed on side of field that was next to a wood on west side, average 15 bushels, and 36 were expected, at 3 miles from sea, and 150 feet above it.

Mr. Wm. Turner, a tenant upon Stanstead estate, had his wheat so much blighted in the year 1814, as to reduce it to forty pound per bushel; and a cubic inch contained 500 grains.

Mr. John Knight, of Havant, in Hants, farms his own land, and wishing to do something extraordinary, he manured one field for turnips; and year after he manured the same field for turnips again, and after the turnips were cleared off, he plowed, and sowed wheat; which proved to be a most gigantic crop, but said to be so blighted, that Mr. Knight offered it to any one that would harvest it and return him the straw. The field is within a mile of the sea, and not above twenty feet above sea level. Blights by moisture carried by the sea breezes, are never so fatal to vegetation near the sea, as at from three to seven miles distance. I always considered his loss to have originated in over manuring. Every person, except very superficial observers, well knows what muck middle corn comes to; viz. luxuriant plants, but never any corn. I had a field of wheat, forty miles from sea, and 800 feet above sea level; and although near the bottom of a vale, one mile wide, and

field hanging to the south, it was not ready for sickle before October, 1828. The crop was handsome; 483 sheaves per acre, average weight six pound, total, 2898lb.; produced sixteen bushels of wheat, weight forty-eight pounds per bushel; total, 768lb. The wheat was blighted by frost, so that it was fit for no purpose but for pigs; if sown it would not grow; and what was ground into flour, could not be eat, when made into bread; and the straw was injured, so as to appear like blighted, or rusted straw, and equally tender under the flail.

Oats, grown in the dry summer 1806, and thrashed in February, 1807, weighed 303lb. per quarter, and the straw 313lb., exclusive of chaff and waste. This, I suppose, is what is termed yielding corn for straw. A good crop of oats, that measured thirty cube yards per acre, on carts or waggons, will shrink to twenty-three, in a tramp enough, and will weigh 5000lb., and will produce sixteen hundred pounds of oats. Thrashing by the quarter: the prices will vary, even on the same farm, according to seasons, weight of crop, blend ripe, or well ripened. Sandy, gravelly, and calcareous soils; the crops from such may be thrashed at half price of crops from strong, or clay land, so that no one can know what the price for thrashing should be, but the real practical farmer, that knows the land, the crop, and what the season was. The following

may be considered as a fair average: wheat, rye, and tares, 4s. ; barley and oats, 2s., per quarter. Trussing and weighing straw, 1s. 6d. for all sorts, per load. Thrashing pease, beans, and buck-wheat, 1s. 6d., and for clover seed, forty to fifty shillings. Farmers have found so much clown-craft and chicanery in their barnsmen in separating the corn from the straw, as to induce them to erect thrashing machines: there is nothing saved by those worked by oxen or horses. Their advantage is in their expedition. Mr. Bridge's machine, at Winfordeagle, Dorsetshire, worked by four oxen, and two sets of oxen per day, could thrash 80 bushels of wheat, or 112 bushels of barley, or of oats 180 bushels, or of pease 160 bushels. N. B. This farm is upon chalk downs, seldom producing 20 bushels of wheat per acre, in course the straw is short and fine. Judge Best purchased the farm, and conducted a stream of water to work it—the machine, instead of oxen. I saw it at work, in the year 1819. Sir George Pigot, of Patsal, in Shropshire, hath one worked by water; he told me it had thrashed out clean and well, 240 bushels, in one day, adding, it was a long one. Those worked by steam are as steady and powerful as those worked by water.

TICKS, (*recinus*), are well known to harvest people by the name of harvest bug, also to cow-keepers, particularly in woods and forests where

the cattle are kept poor by the ticks sucking blood.

THISTLE CLAMS, or Forceps, are very useful for drawing thistles, in corn crops. A clause was enacted in a general Road-bill, passed in the year 1810, as follows:—

ROAD BILL.—The bill for ascertaining the duties incumbent on the occupiers of land adjoining the highways, contains the following clause:—“And whereas thistles, docks, and other weeds, often grow on the sides of highways, and on the banks and hedges adjoining thereto, the seeds of which, if suffered to ripen and disperse, do great injury to the adjacent lands; for the remedy thereof, be it enacted, that it shall be lawful for the occupiers of inclosed lands nearest to the places where the said thistles, docks, and other weeds, are growing, and they are hereby required, from time to time, to cut down and carry away the said weeds, or otherwise to destroy the same; and if they shall not be cut down or otherwise destroyed before the 1st day of July in every year, or before such time as the said weeds shall be in flower, the Surveyors surveying the parish wherein such weeds grow, shall, and they are hereby required to cause such thistles, docks, and weeds, to be cut down or destroyed at the proper cost and charge of such occupiers of the nearest inclosed lands;

and if any such occupier shall refuse upon demand to pay such charge and expense, the same may be recovered before any Justice of the Peace acting for the division, who shall summon the parties before him and their witnesses, and summarily examine into the complaint, as well by the oath of witnesses as otherwise, and cause such sum as shall appear to be due, as well as the costs of suit, to be levied by distress and sale of the parties' goods, unless the sum shall be paid within the period of ten days from such complaint being heard and decided."

TILES, 11 inches long, and 6½ wide; forty-eight such weighed 112lb., and when set on edge in the bed of a waggon, took 10 in length, 60 in breadth or width of waggon, and four course deep made a load of 2,400 tiles, weight two ton and a half; 550 to a square of tileing, is two and three quarter tile in thickness, or 11cwt.; 22lb. per square, at 50 shillings per 1000, is £1 7s. 6d.; these were old tiles in Buckinghamshire, and the following were new tiles in Dorsetshire—10 inches long, 6½ broad, and half an inch thick, weight 2½lb. or forty-five 112lb., 2250 tiles, weight two and half ton. Hipp and valley or gutter tiles, weighs 3½lb. each, 640 one ton. Ridge tiles, 14 inches long, 12½ girt, and half an inch thick, weight 6½lb., 350 one ton. Tiles paving, 9 inches square and 2 thick, weighs

12lb. each. Dorsetshire stone tiles, alias blue-hyas slate, quarried south of Chalkdowns, one ton to a square; price at quarry sixteen shillings.

TILL, is a mixture of sand and clay; always cold and wet.

TILLAGE; by many mistaken for manure, but it means the labour. Land well and seasonably plowed, harrowed, and rolled at each plowing for wheat, four or five times in strong land; may be said to be brought to a good tilth, and so in proportion for turnips, barley, &c., but for wheat in strong land, never harrow the seed in fine, but leave it lumpy; these lumps waste during winter, earths the wheat roots, and prevents the ground from consolidating.

TIMBER, (see my Treatise on Timber and Planting,) yet as a caution against over-loading with green, alias new felled and unhewed, 25 feet of any sort weighs one ton, as measured by timber dealers for round timber, but if reduced to the square one foot weighs 64lb. instead of 90, or 35 feet one ton.

TIMOTHY grass, (phleum pratense) alias catstail grass; one bushel weighs forty pounds; one cube inch contains 20,000 seeds; fifteen pounds of seed is sufficient to sow on one acre

without any mixture; it grows very erect, the grassy blade or leaf resembles wheat when coming into ear, and that is the time to mow it for hay, for if allowed to push up its spikes to flower, the leaves are injured and hay rendered too coarse; no other grass that I am acquainted with produces so heavy a crop, or that cattle likes better, but it is too strong for sheep, as their tongues is not strong enough to conduct it to their masticating teeth, but when cut by the chaffcutter they eat it with avidity.

TORCH royal, and **sur royal**. (See attire of deer.)

TOWRUS: when a roe desires copulation, he is said to go to his towrus.

TRACE; the footmarks of a hare in snow.

TRACK; the footmarks of a boar.

TRETTLES; the dung of a rabbit.

TROTCHLINGS; the small little branches on the top of a deer's horn, divided into three or four,

TRIFOLIUM, trefoil, pratence or common red clover, is too well known to need a comment.

It is well made clover hay that do not require more than 9 yards to a load, or ten to a ton. Withering, in his British Botany, calls it honeysuckle. Farmers, in general, call the little annual birdsfoot trefoil, honeysuckle; they also confound the medicago lupulina or black medick, which is a biennial, with the hop or yellow clover, which is only an annual; each hath yellow flowers; the medicago lupulina is called blackseed, on account of its seed pods or shells being black; it is also known by the name of Trayfoil and Nonsuch. The fact is out of forty varieties of trefoil, there are but three cultivated by the British farmer: first, white clover for pastures; it abounds in the marley districts of Yorkshire mores. Second, is perennial red clover, oval spiked, marle grass, cow grass; it is the trifolium medium, and trifolium alpestre and flexuosum, are all one and the same; it is a native of the Yorkshire mores also; one bushel, weight 50lb., one inch cube 7000 seeds; it is good to sow for clover hay, also for laying down with other seeds for pasture, which the broad clover is not. Third, is the broad clover; it was first brought from Flanders, about the year 1616. Clovers and trayfoil sown in March or April, without corn, will bloom in August; and when sown with corn, they are fourteen or fifteen months in coming to bloom; when it is intended to raise some seed, the first crop is too strong,

the second so late as to be in danger of mildew, therefore let the clover be eat off until first of June, and a crop of four or five bushels of seed may be obtained of the very best quality. In sheep farms, take first crop of clover, and break up for rape to be eat in autumn, and then sown with wheat; the common practice is to mow twice, and then break up for wheat: some suffers clover stubbles to stand for spring feed, and plows once in June for rape. Suffering clovers to occupy the land too long, it becomes like old lay, viz. a perfect nidus for wireworm; and other grubs, besides tiring the ground so much sooner: When land is tired of clover, then sow ryegrass and trayfoil seed mixed, and upon all occasions winter and spring tares can be brought in for hay as a substitute for clover hay, or a green crop for soiling. (See Clover.)

TREFOIL medicago lupulina, 56lb. per bushel, and 8000 seeds per inch:

TRENCHING of ground, by the statute rod, from any depth below surface, at one penny per inch; suppose 18 inches 18d.; 2 feet deep, two shillings; plain, or common digging, nine inches deep, at three-pence; at ten, four-pence; at eleven, five-pence halfpenny; at twelve, seven-pence; at thirteen, eight-pence halfpenny; at fourteen, ten-pence; at fifteen, twelve-pence;

at sixteen, fourteen-pence; and, at seventeen, sixteen-pence; and any greater depth there is less to lift.

TRUSSING hay or straw: the hay-binder finds his own hay-knife, and hook to twist the hay-bands, or straw-bands; when trussing clover hay: two bands is laid for each truss, and the trusses are cut three feet long and two broad. A sharp pointed spindle, with a ring at top, is thrust down the centre, holding the spindle by the ring with left hand, and with right lifts the truss, so as to get hold of the point of spindle, at the desired thickness, thus by the spindle he carries it to the bands, binds it up, and weighs with steelyard hanging upon a fork handle, whose tines are stuck into rick, and handle resting upon the binder's shoulder: thus a load of 36 truss, each truss weighing 56lb., and 14lb. over, for bands, and loss by exposure to sun and wind; and 60lb. of new hay per truss, is cut, bound, and weighed for two shillings per load; and if he helps to load and bind, he hath sixpence more. A truss of clover is cut into chaff as short as barley-corn, to be mixed with horse-corn, and if measured, will be six bushels up-heap, weight nine pound per bushel; at sixpence per truss for cutting. Trussing straw, is invariably done by the thrasher, at eighteen-pence per load, of thirty-six trusses, each truss to weigh thirty-six pound in market;

two pound is allowed by trusser for loss in bands and drying; each truss is nearly five feet in length, and five and a half girt, bound by two straw bands. Trussing of straw is only practised in the vicinity of great towns, for conveniency of marketing, where the teams can be loaded back with manure, of the very best quality. Selling straw, by country farmers, is inadmissible; straw as manure, made on a farm, is the property of the land, and is generally secured as such, by a restrictive covenant in the lease, nor do the farmer estimate it any other value, more than covering expense of harvesting, thrashing, and marketing, for which the straw remunerates in fodder, litter, and manure.

FUEL, on fundament of any beast.

TURF, to take up for grass walks, verges, or grass plots, at one shilling per hundred, each turf to be three feet long, and one foot broad. If nicely raised, and taken up with a good turfing iron, and rolled up, each turf being one and half inch thick, then one hundred close piled, will be 45 cubic feet, and will weigh one ton; one hundred, and the ground being properly prepared to receive them, they will be re-laid at four pence per hundred, viz. 300 square feet, at eight pence weight per foot.

TURNIP, (*brassica rapa*) seed 48 to 51lb. per bushel; sow 2lb. of seed per acre, but let it be half old and half new, it will then come at two different times: if first is eat by flies, the second may escape. Some mix a little rape seed for the fly, as they leave the turnip unmolested as long as there is any rape plants. One pound of seed is too much by three times; there being 5000 seeds in a cubic inch of English turnip seed, so that nine cubic inches of seed contains more seeds than an acre contains in square feet. Sweed turnip and rape seed, a cube inch contains 3,700 seeds; but as young turnip plants are subject to so many casualties, prudence says sow liberally; the surplus is easily destroyed by the hoe, for preparing the ground, (see Fallowing,) and when the fallow is freed from root weeds, set on the manure, spread and plow it in five weeks before sowing time, and the seed furrow will bring it up again so mellow, that it will mix uniformly with the soil by harrowing, and be less liable to the depredations of the fly, than the common way of manuring. So sensible are some eminent farmers of raw manure breeding the fly, that they fallow for wheat, giving it the manure, and sows their turnips after wheat. We frequently hear of 20 or 30 loads of manure being laid on for potatoes or turnips, per acre; but where one-fifth or sixth is manured annually, so as to manure all the arable land in five or six years, the farmer will

find that from 12 to 15 ton, or large farming cart loads, will be as much as can be made for each acre contained in the sixth part of the plowed land, and by good tillage, with the assistance of sheep eating the turnips, the grounds will be kept in high condition. This can only be done where there is plenty of pasture and meadow ground: manure may be augmented by growing more leguminous and green crops, as beans, pease, tares, saintfoin, clover, trefoil, &c. for horses in the stable in summer. The ground being prepared as above, the turnip seed may be sown broad-cast or drilled across the lands and furrows. The Downs of Kent, Sussex, Hants, Dorset, Surry, Bucks, and Wilts, are too dry a soil, as well as climate, to grow large turnips; therefore, drilling on level ground, at 12 to 18 inch intervals, is eligible, and less liable to injury by summer's drought, and winter frosts. Some parts are so full of flints, that drilling or hoeing are impracticable; here they harrow instead of hoeing, and sheep are turned in on dry days a few hours, to eat the charlock and poppy. From North Hants, northward, soil is stronger, and climate moister, so that wider drills is required, as the turnips grow much larger when sown early. Broad-cast or narrow drills is better for the succeeding crops, as the ground is fertilized by the shade of the tops, as after a heavy crop of clover; whereas wide intervals of 27 to

30 inches, produces large turnips with small tops, that suffers the ground to be exhausted by too much evaporation; the plants will in three to five weeks after sowing the seed, be ready for the first hoeing; time of sowing for autumn feed is midsummer; for winter feed, middle July; and for ewes and lambs in spring, latter end July and first week in August. Orange turnip and early stone turnip, to be sown as soon as crop of corn is off, and ground plowed; these are termed stubble turnips; with these winter rye and tares, there can be no lack of spring feed, and as to distance of drills or turnips on the ground, that must be left to the discretion of the grower, who is governed by either soil, situation, or climate. The more room the turnips have in reason, the larger they will grow; but that is no criterion to value the crop by, as a good firm turnip of four or five pound, is worth more to the grower than a spungy one of ten or twelve pound weight. Sow the tankard and white-round for autumn feed; green and red-tops for winter; Sweet, yellow, &c. for spring. I sowed sixteen acres with tap turnip seed, and finished on fifth of August; this a species of tankard turnip growing to three or four inches diameter, and as the tankard stands high above ground, they were hoed in September; and October, 1807, produced twenty tons per acre: the winter was severe, yet I never found one turnip injured by

and if any such occupier shall refuse upon demand to pay such charge and expense, the same may be recovered before any Justice of the Peace acting for the division, who shall summon the parties before him and their witnesses, and summarily examine into the complaint, as well by the oath of witnesses as otherwise, and cause such sum as shall appear to be due, as well as the costs of suit, to be levied by distress and sale of the parties' goods, unless the sum shall be paid within the period of ten days from such complaint being heard and decided."

TILES, 11 inches long, and 6½ wide; forty-eight such weighed 112lb., and when set on edge in the bed of a waggon, took 10 in length, 60 in breadth or width of waggon, and four course deep made a load of 2,400 tiles, weight two ton and a half; 550 to a square of tileing, is two and three quarter tile in thickness, or 11cwt.; 22lb. per square, at 50 shillings per 1000, is £1 7s. 6d.; these were old tiles in Buckinghamshire, and the following were new tiles in Dorsetshire—10 inches long, 6½ broad, and half an inch thick, weight 2½lb. or forty-five 112lb., 2250 tiles, weight two and half ton. Hipp and valley or gutter tiles, weighs 3½lb. each, 640 one ton. Ridge tiles, 14 inches long, 12½ girt, and half an inch thick, weight 6½lb., 350 one ton. Tiles paving, 9 inches square and 2 thick, weighs

and 168 Southdown sheep; they eat rather better than one square yard per head per day, viz. 13lb. 7 tenths of turnip, and 2lb. 3 tenths of tops to each sheep—total 16, besides a little timothy grass hay, cut into chaff, and placed in troughs for them to go to at pleasure, in an adjoining grass field. 30 cube inches of the above turnips weighed a pound. One white-round turnip, upon a 28 inch drilled ridge, measured 37 by 36 inches circumference, and weighed 18lb. without tops or root, which is fifty inches to the pound, or as 5 is to 3 in favour of small turnips by measure; and by measure I think one bushel of moderate sized firm turnips, fairly worth three of those over grown turnips. Two tankard turnips, whose cube measure was 1033 inches, weighed 26½lb., viz. 89 inches to a pound.

A Mr. Richard Walters, from Marlborough downs, took three adjoining farms in Bucks, principally arable, down, or upland calcareous soil, mixed with sand and marle. He was bantered by the neighbours for introducing so many sheep, and told that he could not grow turnips for them; he replied, 'I'll let you see whether I can or not.' His turnip-fallow being ready, he covered it with wheat straw, well saturated in the farm-yard drainage, ten or twelve common loads per acre; and in order to bury the straw, a wooden false coulter was fixed to the beam, so as to keep the straw from the real coulter. The

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weight 266lb., green tops, 128lb., or 18 ton, 6 cwt. of turnips, and 9 ton, 3 cwt. of tops, per acre. Some he sold in the field, at 7d. per bushel, which is at the rate of 21 pound, six shillings an acre, or 23 shillings per ton, and 5 shillings per ton for tops, is £23 11s. 9d.. In November, 1817, had the turnips been thinned to 16 or 18 inches distance, instead of barely 12, there would have been more bulb, and less tops. As one bushel, upheap measure, is one cube foot and six tenths, 640 bushels per acre is 1024 cube feet, or 38 cube yards of room required to store up one acre such turnips.

Consumption of turnips.—The above crop, purchased of Mr. Charleton, was 147lb. for one penny, and was as much as one sheep could eat in 9 days and 188 parts, at 16lb. a day. The common price for sheep, per week, at turnips, is four-pence halfpenny. Such a crop will keep 516 sheep a week, on one acre; value eleven pounds, sixteen shillings and nine-pence per acre: the vendor then would have to find herdles, and a shepherd to shift them daily, and drag up the roots for the sheep, two months. The mutton worth nine-pence a pound, when Southdown sheep are to pay four-pence halfpenny a week, and three-pence when at sixpence a pound. I have read of sheep and bullocks eating one third, and some one half, of their mutton or beef weight, in twenty-four hours: if ever they

did, the turnips must have been large over-grown spungy turnips, so that the animals keep eating, and although full, are not satisfied; for when turnips are good and firm, they cannot eat more than one fourth of their flesh weight, nor more than one sixth when fed on Swedish turnips. I put up a bull to fat, upon English turnips, he weighed 262lb. a quarter, and eat 230lb. of turnips per day, besides hay at same time: I had six Scotch steers, alias runts, average weight per quarter 154 pound; they eat 180lb. of turnips per day, and 7lb. of hay each. I had a crop of white round turnips grown upon Yorkshire more, marley land, fallowed, but no other manure besides lime; the turnips were small and firm as Sweeds; I fattened a four-year old heifer with some of them; she weighed 119lb. a quarter, and eat 50lb. per day, first three weeks, and afterwards not so much. The turnips being small I had a short chain fastened to bottom of booth-stake with a hook at end, to hook into her neck-chain, to keep her head down whilst feeding, to prevent her choaking herself by holding up her head. The above experiments prove that the weight consumed per day, depends as much upon the quality of turnips, as size of beast; the quality may be ascertained by weighing and measuring a few of the largest, and comparing the specific gravity to that of water. This test is an infallible criterion by which the feeding

quality of the turnips may be known. A turnip whose diameters are equal, viz. 12 inches each way; to find its solid contents, multiply the circumference 37 inches, 714 parts, by the diameter 12, the product will be 452 inches and 568 parts; multiply that product by 2 or one-sixth of the diameter, gives 905 cubic inches and 136 parts; or thus, 12 multiplied by 12=144 multiplied by 12=1728 multiplied by 0,5236 the product will be 904½ cube inches. If a cube foot of water or turnip weighs 62½lb., what will a globe or sphere of turnip weigh whose diameter is 12 inches, to find the answer multiply the sperical inches 905 by 62½lb., and divide by the cubical inches 1728, and the answer will be 32½lb. nearly, or nearly 28 cube inches to a pound. When turnips are forced by drills of manure to a large size, and so spongy as to take forty, fifty, or sixty inches to a pound, they are of small value. When turnips are so irregularly shaped that the dimensions cannot be taken, cut off the tops and root close and smooth, then weigh the turnip, and put into a pail full of water; raise it steadily out and fill up the pail with water, either weighed or measured: thus the contents of any irregular figure may be come at even skelletings, bush faggots, &c.

In planting trees, hops, cabbages, or thinning of turnips, &c. into diagonal, quincunx, hexagonal, equilateral triangles and circles, it will be

seen by inspecting the geometrical sketch, (see Frontispiece) that they are but different names for the same figure, in planting, i. e. triangles; and the parallel quadrangles and circles, proves the difference between planting in parallel squares and triangles to be as 6 to 7 in triangles, equidistant in the lines. An acre of turnips set out at half a yard apart, in quadrangles or squares, will contain 139 in rank, and 139 in file, viz. 19321 turnips per acre: but if set out in triangles at half a yard apart, there will be 139 in rank, and 162 in file, or 22521 turnips per acre. Suppose the turnips to average six inches diameter, then 139 turnips in rank gives 69½ feet, and the same in file, as f, g, h, and i; are two in rank, and two in file, (see the Frontispiece) and thus occupies 4840 square feet, or 2420 cube feet or 90 cube yards, and the cube root is 13½ feet, or 27 turnips nearly. But as turnips are not square, but circular; when drawn and stored for winter use, they range as the circles k, l, m, in said figure, and the number in side of a square acre will be increased in the ratio as 6 is to 7, or 139 turnips in rank, and 162 in file, as above, omitting fractions; and when close piled, will occupy the same space only, as 19321 and the 22521 close piled, would occupy 78 cube yards only, instead of 90. To turn squares into circles, or which is the same thing to find the area of a circle; square the diameter of one of the above cited turnips,

thus—6 multiplied by 6—36 multiplied by 7854
 —28 inches and 2744 parts, the area of the circle;
 and by dividing the area of the circle, 28,2744, by
 the area of the square 36, gives back the multi-
 plier 7854.

To turn a cube of 6 inch diameter into a turnip,
 globe, or sphere, cube the diameter 6 multiplied
 by 6—36 multiplied by 6—216, multiplied by
 .5236 gives 113 inches, the contents of the tur-
 nip; and by dividing the inches in the globe, by
 the inches in the cube, gives back the multiplier
 0.5236, or multiply the circumference by the
 diameter 6, thus—as 118 is to 355, so is diameter
 to the circumference 355 multiplied by 6, and
 divided by 113, is 18.85 for circumference; then
 18.85 multiplied by 6 is 113 inches, as above. It
 is singular that a sphere of 6 inches diameter,
 hath the same number of superficial inches in its
 surface, as in its solidity. In all spheres the
 circumference multiplied by the diameter, is the
 superficial surface; and when above six inches
 diameter, the superficial product multiplied by
 one-sixth of diameter, is the solidity, as 11 is to
 14, so is the diameter of a square to that of a
 circle of equal area.

I, this 21st November, 1826, weighed a tur-
 nip, that was just 2lb. I sunk it in water,
 weighed, in a gallon tin, full to overflowing; on
 taking the turnip out by a string, and then
 weighed the water; I found turnip had displaced

3lb. 12oz. of water; then, as $3\frac{1}{3}$ is to 62lb., or one foot of water, so is 3lb. to 50lb., or one cube foot of turnip. On 1st March, the above 3lb. turnip weighed just 2lbs.

Some writers tell us that 6 sheep's keep, is equal to one bullock; so they may, if they are Lincoln large breed of sheep, compared with the Scotch Highland stotts, or small breed of bullocks: others write, that eight sheep's keep is equal to one bullock, without specifying any breed or feed. I know by experience, that 12 Southdown sheep's keep on turnips, is equal to one bullock of the Scotch breed, called rants. How many sheep of the Welch or Scotch small breed, would be equal to a Holderness steer? one weighs 7lb. a quarter, and the other 54lb. Divide 549 by 7, gives 78 sheep to one bullock. The best sized English turnips that can be grown will be about 20 to 25 ton per acre. Allow 24lb. per day, for Lincoln breed; and 16lb. for Southdown breed, proves that the owners should pay the turnip growers one third more for Lincolnshire sheep, per head, per week, than Southdown sheep, and so in proportion, for the weight of any other sheep, or neat cattle. Good solid turnips, of 64lb. imperial bushel, are worth for cattle 4d., or 1s. 8d. per ton, allowing tops for labour, if sold off, and subtract 3s. 4d. per ton for manure, which will make 8s. 4d. per ton; thus the real intrinsic value of any crop may be found, whether eaten

where grown, or sold off; and be careful to select all the very large ones first, when there are such, by early sowing, to prevent loss by frost, or growing spungy.

A pound of water contains 27 cube inches, and 648 parts. Suppose a pound of turnip contains 30 inches, what will the crop of 19221 weigh—112 divided by 30 is equal to 3lb. 766 parts per turnip; then, 19221 multiplied by 3,766, will be equal to 72763lb., or 82 tons, 9 hundred, 2 quarters and 19 pound. This crop worth £10 16s. 8d. exclusive of tops, per acre, to be eat by South-down sheep, at 4d. per week, per head; or 6d. per head for Lincolnshire sheep; as there is not one turnip in a thousand grows in a form to be easily and accurately measured, only by immersion and weight. Sweed turnips are heavier than English turnip in the ratio of five to six, and contains twice as much saccharine matter. I once planted eighty Sweed turnips, at thirty inches apart, with their crowns just covered, on 29th March; the seed was ripe 6th August, and thrashed on 10th, and produced 25 quarts of seed, that weighed 86lb.; thus one acre would produce 70 bushels, of 46lb. at 2s. 6d. a pound, the price in 1800, £402 10s. 0d. I measured the same seed in December, it had shrunk to 22 quarts, and lost 2lb. in weight, and was nearly at the rate of 50 pound a bushel; the loss in four months was at the rate of twenty-two pounds;

thirteen shillings, per acre, in drying. Turnip-rooted, or Lapland cabbage, and the turnip cabbage of Siberia, produces its turnip between the ground and the leaves; they are both good for late feed in spring; they require early sowing as the Sweed; but as they are neither so good, or so certain a crop, I have done with them. To raise a good crop of turnips, and leave the land in good condition for succeeding crops, I consider half rotten manure to be superior to any other: thus prepared, plow up hedge greens, alias head and foot lands, deep, lay on a range of farm yard manure in autumn, and then a range of lime, and cover the whole by throwing up the sides with spades. In February or March, turn it; in May it may be laid upon the fallow, and plowed in; and in giving the seed furrow, it turns up in such a state as cannot be otherwise obtained, for the seed and young plants to work in. Oilcake powdered, three or four hundred weight per acre, drilled in with the seed, may be good upon the above compost; but depends upon such sympathetic powders is absurd. Fifteen ton of good manure from yard, worth eight shillings per ton, is better than dust dried or dessicated nightsoil, in scruples and drachms. In storing of turnips for winter or spring use, care should be taken to leave a vent to let out sweat, and not to admit of wet: there is an exudation from the bulb through the crown, that

causes a slight fermentation, and if it cannot escape, putrification follows; by no means ever cut off the roots, as that opens another vent for moisture to escape. Storing or housing for winter is unnecessary in the southern counties, yet as in the north there is a difficulty in raising food for sheep, in April and May, without turnips or other roots as auxiliaries, to hay and watered meadows. Therefore all bulbs and roots, as turnips, mangel wurzel, carrots, and parsnips, should be taken up in March, before the sap moves, and the tops cut off, but not close, as that would rot them; nor is the root ends to be cut off, what earth adheres to them will be useful, by preventing their heating: thus the ground is cleared in good time for other successional crops, and the turnips or other roots housed into barn, or other place sufficiently spacious to admit of their being turned every ten or fifteen days, by women, who carefully sort out all faulty ones; and thus they may be kept good until midsummer. Also, potatoes taken from the store pits in April, and housed, by turning and rubbing off the shoots, once a fortnight; they will keep good until July, and however earthy when housed, they come out clean.

TURKEYS. Young ones as soon as hatched, should be dipped in a pail of cold water, and a pepper corn given to each, and not suffered to

ramble with the old ones before they are strong enough. (See Poultry.)

TWINS; of sheep, common; cows, seldom; mares, never. I never read of deer or fawn twins, or heard keepers admit of twins. I, on 16th June, 1807, disturbed a doe in the act of fawning, and she got up from two fawns.

TITHES, are established by the laws of our country, and to cavil at them is absurd. The tenant knows when he takes a farm he shall have tithe to pay, and calculates accordingly, allowing one-sixth for tithe; thus—suppose the land worth thirty shillings an acre, he estimates at twenty-five shillings an acre for rent, and five for tithe: some allows one-fifth for tithe, others one-fourth. The farmer should make himself well acquainted with the rector, proctor, or tithing man's mode of tithing, as some rectors employ a valuer annually, one such near Wetherby, —some of the parish calcareous loose turnip land, incumbent upon limestone rock, in high hills, and not worth more than twenty shillings an acre to rent; the wheat crop was valued for tithe that year, 1819, at twenty-eight shillings per acre.

UNLEACH; is to let go dogs after the game.

VALUING farms, farm expences, and profits, are undertaken in general by those whose ignorance can only be paralleled by their impudence, and not real professional men.

VEGETATION, of seeds, is caused by a due proportion of moisture and warmth, so as to bring the germ into action; its ultimate success depends upon the culture, that is, to breed the food of plants by evaporation, of wholesome or noxious gases rendered so by manures, water, &c. impregnated with proper doses of oxygen, hydrogen, and carbon, that enters the germ and pushes on vegetation, until the leaves get fully expanded; then the plant begins to swell in thickness, or throw out its bloom, if herbaceous, and the leaves then become caterers to mature the fruit and seeds. (See my Evelyn's Silva or Dendrologia.)

VELVET horns, is a velvet-like skin, upon deers' horns, whilst growing, and is ripe so as to fall off from 26th of August to 26th September, which is termed the burnishing season. When bucks are killed in July, the velvet is peeled off and fried with the pluck, &c.

VENISON. All beasts of the forest that are hunted and are meat, are venison or venary, because they are caught by hunting; so that the

boar after he is three years old, and hunted, is venison. The hare being deemed the best of all venison. The roe is not a beast of the forest, therefore not venison, unless hunted.

VERDUR, in forest, is any thing bearing a green leaf fit for food or shelter for deer.

VERMIN, are of various species, on land, in water, and in the air, and various nostrums are prescribed for their destruction too numerous for this compressed sketch.

VETCHES, *Vicia*. There are twenty-one varieties; *vicia sativa* or common vetch or tare, 220 seeds per inch, weight 62½ lb. per bushel, to be sown in August or September; three bushels per acre for soiling, and if for hay two bushels only, and in making the hay never spread it, but turn and cock as saintfoin and other artificial grasses; some mows a swath or two at a time for sheep, and folds by pitching a row of open herdles close to swaths, for sheep to reach the tares; thus the field is regularly trod and manured; best for sheep as just beginning to bloom, for cows when first pods are set, and for horse hay when pods are half filled; these dills will produce 15 ton green, and dry, to 3 ton of hay. There is a white seeded tare, that hath a white bloom, and a perennial tare (*vicia sepium* or bush vetch)

it is worthy of cultivation, but is strangely neglected; no other plant that I know that is so productive as a permanent meadow or pasture plant, with so little trouble. (See Lentils and Tares.)

VINEGAR, or acetic acid. (See Fermentation.)

VINNEWED, or vinney, as blue vein cheese, mouldy bread, &c.

VIVEPAROUS, bring forth young alive, as do some grasses, garlick, and rockambole; oviparous by seed, as eggs.

WALLS pointing, to keep out the wet, with patent cement, cost me nine-pence a yard. I had part done at same time with lime, that was air-slacked by lying in a cart shied twelve months, without either sand or water; of this I measured one bushel, and had it mixed with three bushels of fine sharp gritstone, road, or drift sand, frequently turned to mix it uniformly, before any water was added. When well worked with water it was so harsh and tender, that it was with difficulty got into the joints of the wall. This mortar will not do for cisterns; it is porous as stone, but sets in the joints and hardens by time to a perfect Celite or Portland stone, and is now as

hard as the wall itself. As this Crayen stone lime had laid twelve months, it is a fair inference to say five sands to one bachel of hot lime from the kiln and unslacked, would not be too much. (See Buildings and Lime.)

WARPING of land. (See Silting.)

WATER. One cube foot weighs sixty-two pounds and nearly a half.

WATER-MEADOW is so well known, the modes of making and managing so well described by various authors, as to render it unnecessary to dilate upon the subject, farther than pointing out its value as an auxiliary to pastures, in spring and autumn: for sheep breeders in April and May only they are worth three to four pounds an acre, and as much for hay and aftergrass, when on a calcareous soil and plenty of water, ten pounds an acre is a fair value; the hay crop of six weeks' growth from old Mayday, two tons per acre. Dorset, Wilts, and Gloucestershire farmers take the lead as irrigators, they by giving a quick fall to the panes, as perfect inclined planes completely destroys rushes and other aquatics, even on boggy land.

WEALDS, are woody districts, as wealds of West Kent and East Sussex.

WEATHERGLASS. (See Barometer.)

WELD, (*resida luteola*) dyer's weed, ten varieties; it is an annual; four pounds of seed to be sown per acre, with tares, pease, beans, or any crop of lent corn, and will produce forty or fifty hundred weight, worth ten shillings per hundred for dyeing yellow: mignonette is one of the ten.

WEIGHTS and measures are inseparably connected, and originally established by necessity, as the hilly parts of Devon; at Oakhampton their loads of wheat are two bushels, in tall narrow sacks; the hilly part of West Riding of Yorkshire three bushels to a load; most other places four bushels is a load, sack, or coomb; two sacks one quarter of a ton, at 9 gallons per bushel; horses improved, carriages and roads improved—hence the origin of loads for a team of 3 to 5 horses, and now none too much for one horse. 40 bushels of wheat is a load or ton: 12 sacks of flour, at 280lb. per sack, is a load. Twenty-four sacks of malt, at 144lb. per sack, is a load. Thirty cube feet of oak, forty-five of ash, and fifty of fir, is a load at London; and carriers by land or water reckon forty feet of round, and fifty of squared timber, a load. Timber merchants buy fifty feet of round timber to a load, and sells forty squared. A pack of any

goods is 240 pounds, Avoirdupois, of 7000 grains, as fixed by the new act, (see Measures under M.) We are informed by the newspapers that the Imperial bushel holds 80lb. of distilled water, and 82lb. of common water. Mr. Watkins, of Charing-cross, who is a first-rate mathematician, and profound master in the accurate sciences, says one cube foot of water weighs 62lb. and 3265 parts; then as 1728 is to 62,3265, so is 2218 to 80lb., so that 80lb. is the true weight of one Imperial bushel of common water, out of river Thames of course. The Imperial standard weights and measures are kept in the Exchequer. Troy-weight, (so called from Troyes, a city of Champagne, in France,) hath 12oz. to the pound. Avoirdupois hath 16oz. to the pound. Avoirdupois ounce is lighter than Troy ounce by $42\frac{1}{2}$ grains; the proportion is 144lb. Avoirdupois, is equal to 175lb. Troy; now to prove this, find the lowest whole number that bears the same proportion, we must find the greatest common measure that will divide both numbers, without any remainder, thus—

$$\begin{array}{r}
 5760)7000(1 \qquad 7000 \text{ divided by } 40 \text{ gives } 175. \\
 \underline{5760} \qquad 5760 \text{ divided by } 40 \text{ gives } 144. \\
 1240)5760(4 \\
 \underline{4960} \\
 800)1240(1 \\
 \underline{800} \\
 440)800(1 \\
 \underline{440} \\
 360)440(1 \\
 \underline{360} \\
 80)80(1 \\
 \underline{80} \\
 40)80(2
 \end{array}$$

Answer is forty.

One hundred and seventy-five ounce, Troy, are equal to 192oz. Avoirdupois, thus—as 4374 is to 175, so is 480 to 192.

Apothecaries' weight is the same in pounds as Troy, only differently divided. Apothecaries' dram is 60 grains; the Avoirdupois dram is only 27 grains and 34375 parts.

In weighing the precious metals, 24 blanks is one perit; 20 perits, one droit; 24 droits, one mite; 20 mites, one grain.

24 grains, one pennyweight; 10 pennyweights, one carat.

2 carats, one ounce; 12oz., one pound.

27,34375 grains, one dram, Avoirdupois, or long weight.

16 drams, one ounce.

16 ounces, one pound.

14 pounds, one stone.

8 stones, one cwt. 112lb.

5 hundred, one hogshead.

2 hogsheads, one pipe or butt.

2 butts, one ton of 20cwt. or 2240 pounds.

1 inch cube contains..... 202 grains.

4,33203125 do. half a quarter of a pint,

or half a jack..... 875 do.

8,6640625 do. one $\frac{1}{4}$ of a pint or 1 jack 1750 do.

17,328125 do. or one gill,..... 3500 dg.

34,65625 dg. one pint or lb. of wheat 7000 do.

69,3125 do. one quart,14000 do.

138,625 do. 1 pottle or $\frac{1}{2}$ a gallon, 28000 do.

277,25 do. one gallon,56000 do.

554,5 do. one peck,112000 do.

1109 do. half a bushel,224000 lb.

2218 do. one bushel,448000 do.

4 bushels, one barrel, coomb, or sack.

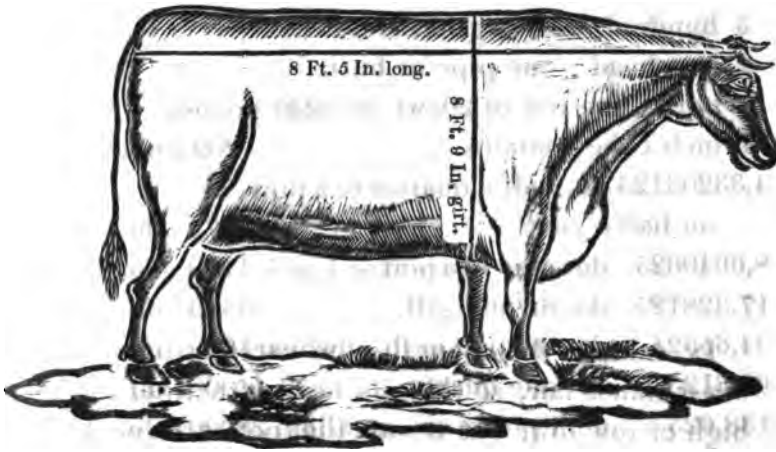
2 sacks, one quarter; 5 quarters is a load or wey.

2 weys, or 80 bushels is a last.

A pound of water is 27,725 cubic inches.

A pint of water is 20oz.; or a cube foot 624lbs.

Prime samples of grain, by the Imperial bushel, of 18 $\frac{1}{2}$ inches inside diameter, and stricken with a round strickle of 3 inches diameter, will weigh as follows:—wheat, beans, pease, and tares, 64lbs.; rye, 62lbs.; barley 52, and oats 44lbs. The averages of market returns as made by the corn dealers, millers, and mealmen, will be wheat, 60; rye, 58; barley, 50; and oats, 41lbs.



The Grazier's Estimator;

OR, READY RECKONER,

FOR ASCERTAINING THE

WEIGHT OF SHEEP & NEAT CATTLE,

BY MEASURE.



**THE ABOVE CELEBRATED CRAVEN HEIFER WAS OF THE
SHORT-HORNED HOLDERNESS, ALIAS YORKSHIRE BREED.**

IN taking the Lengths, be careful that the beast stands fair, so that its head is neither too high or too low, but so as the poll and neck ranges with the back ; then with a tape or string drawn from the front of the horn, poll, or front of the face, along the neck and cross the ribs, &c. until the line ranges with both hips behind ; and the girt is to be taken round the breast, close to the forelegs, as per figure—length, 8 feet 5 inches ; girt, 8 feet 9 inches ; weight, 121 stone and 8lb.

Len.	Girt.	Wt.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
1 0	1 0	0 7	2 2	1 9	1 9	2 4	2 4	2 7
1 1	1 1	0 7		1 10	1 10		2 5	2 8
1 2	1 2	0 8		1 11	1 11		2 6	2 10
1 3	1 3	0 8		2 0	1 13		2 7	2 11
1 4	1 4	0 9		2 1	2 0		2 8	2 13
1 5	1 5	0 10		2 2	2 2		2 9	3 0
1 6	1 6	0 11		2 3	2 3		2 10	3 2
1 7	1 7	0 12		2 4	2 4		2 11	3 3
1 8	1 8	0 13		2 5	2 6		3 0	3 5
1 9	1 9	1 0		2 6	2 7		3 1	3 7
1 10	1 10	1 1		2 7	2 8		3 2	3 9
1 11	1 11	1 2		2 8	2 10	2 5	1 6	1 8
2 0	1 6	1 3		2 9	2 11		1 7	1 9
	1 7	1 4		2 10	2 13		1 8	1 11
	1 8	1 5	2 3	1 6	1 6		1 9	1 12
	1 9	1 6		1 7	1 7		1 10	1 13
	1 10	1 7		1 8	1 8		1 11	2 1
	1 11	1 8		1 9	1 10		2 0	2 2
	2 0	1 10		1 10	1 11		2 1	2 4
	2 1	1 11		1 11	1 13		2 2	2 5
	2 2	2 0		2 0	2 0		2 3	2 7
	2 3	2 1		2 1	2 2		2 4	2 8
	2 4	2 2		2 2	2 3		2 5	2 10
	2 5	2 3		2 3	2 5		2 6	2 11
	2 6	2 5		2 4	2 6		2 7	2 12
2 1	1 6	1 4		2 5	2 7		2 8	3 0
	1 7	1 5		2 6	2 9		2 9	3 1
	1 8	1 6		2 7	2 10		2 10	3 3
	1 9	1 8		2 8	2 12		2 11	3 4
	1 10	1 9		2 9	2 13		3 0	3 6
	1 11	1 10		2 10	3 1		3 1	3 7
	2 0	1 11		2 11	3 2		3 2	3 9
	2 1	1 13		3 0	3 4		3 3	3 10
	2 2	2 1	2 4	1 6	1 7		3 4	3 12
	2 3	2 2		1 7	1 8	2 6	1 6	1 10
	2 4	2 3		1 8	1 10		1 7	1 11
	2 5	2 4		1 9	1 11		1 8	1 13
	2 6	2 6		1 10	1 12		1 9	2 0
	2 7	2 7		1 11	1 13		1 10	2 2
	2 8	2 9		2 0	2 1		1 11	2 3
2 2	1 6	1 5		2 1	2 2		2 0	2 5
	1 7	1 6		2 2	2 4		2 1	2 6
	1 8	1 7		2 3	2 5		2 2	2 8

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
2 6	2 3	2 9	2 8	1 10	2 4	2 9	3 5	5 4
	2 4	2 11		1 11	2 6		3 6	5 6
	2 5	2 12		2 0	2 8		3 7	5 8
	2 6	3 0		2 1	2 10		3 8	5 10
	2 7	3 1		2 2	2 12		3 9	5 13
	2 8	3 3		2 3	3 0	2 10	1 10	2 5
	2 9	3 4		2 4	3 2		1 11	2 7
	2 10	3 6		2 5	3 4		2 0	2 10
	2 11	3 7		2 6	3 6		2 1	2 12
	3 0	3 9		2 7	3 8		2 2	3 1
	3 1	3 10		2 8	3 10		2 3	3 3
	3 2	3 12		2 9	3 12		2 4	3 6
	3 3	3 13		2 10	4 0		2 5	3 8
	3 4	4 1		2 11	4 2		2 6	3 11
	3 5	4 2		3 0	4 4		2 7	3 13
	3 6	4 4		3 1	4 6		2 8	4 2
2 7	1 7	1 12		3 2	4 8		2 9	4 4
	1 8	1 13		3 3	4 10		2 10	4 6
	1 9	2 1		3 4	4 12		2 11	4 9
	1 10	2 3		3 5	5 0		3 0	4 12
	1 11	2 5		3 6	5 2		3 1	5 0
	2 0	2 7		3 7	5 4		3 2	5 3
	2 1	2 9		3 8	5 6		3 3	5 5
	2 2	2 10	2 9	1 9	2 2		3 4	5 8
	2 3	2 12		1 10	2 4		3 5	5 10
	2 4	3 0		1 11	2 6		3 6	5 13
	2 5	3 2		2 0	2 8		3 7	6 1
	2 6	3 4		2 1	2 11		3 8	6 4
	2 7	3 5		2 2	2 13		3 9	6 6
	2 8	3 7		2 3	3 1		3 10	6 9
	2 9	3 9		2 4	3 3	2 11	1 11	2 8
	2 10	3 11		2 5	3 6		2 0	2 10
	2 11	3 13		2 6	3 8		2 1	2 13
	3 0	4 1		2 7	3 10		2 2	3 1
	3 1	4 3		2 8	3 12		2 3	3 4
	3 2	4 4		2 9	4 1		2 4	3 7
	3 3	4 6		2 10	4 3		2 5	3 9
	3 4	4 8		2 11	4 5		2 6	3 12
	3 5	4 10		3 0	4 7		2 7	4 0
	3 6	4 12		3 1	4 9		2 8	4 3
	3 7	5 0		3 2	4 11		2 9	4 6
2 8	1 8	2 0		3 3	4 13		2 10	4 8
	1 9	2 2		3 4	5 2		2 11	4 11

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
2 11	3 0	4 13	3 1	2 7	4 4	3 2	4 2	8 11
	3 1	5 2		2 8	4 7	3 3	2 3	3 7
	3 2	5 5		2 9	4 10		2 4	3 10
	3 3	5 7		2 10	4 13		2 5	3 13
	3 4	5 10		2 11	5 2		2 6	4 3
	3 5	5 12		3 0	5 5		2 7	4 6
	3 6	6 1		3 1	5 8		2 8	4 10
	3 7	6 4		3 2	5 11		2 9	4 13
	3 8	6 6		3 3	6 0		2 10	5 3
	3 9	6 9		3 4	6 3		2 11	5 6
	3 10	6 11		3 5	6 6		3 0	5 9
	3 11	7 0		3 6	6 9		3 1	5 13
3 0	2 0	2 11		3 7	6 12		3 2	6 2
	2 1	2 13		3 8	7 1		3 3	6 6
	2 2	3 2		3 9	7 4		3 4	6 9
	2 3	3 5		3 10	7 7		3 5	6 12
	2 4	3 8		3 11	7 10		3 6	7 2
	2 5	3 10		4 0	7 13		3 7	7 5
	2 6	3 13		4 1	8 2		3 8	7 9
	2 7	4 2	3 2	2 2	3 3		3 9	7 12
	2 8	4 5		2 3	3 6		3 10	8 1
	2 9	4 7		2 4	3 9		3 11	8 5
	2 10	4 10		2 5	3 12		4 0	8 8
	2 11	4 13		2 6	4 2		4 1	8 12
	3 0	5 2		2 7	4 5		4 2	9 1
	3 1	5 4		2 8	4 8		4 3	9 5
	3 2	5 7		2 9	4 11	3 4	2 4	3 11
	3 3	5 10		2 10	5 1		2 5	4 0
	3 4	5 13		2 11	5 4		2 6	4 4
	3 5	6 1		3 0	5 7		2 7	4 7
	3 6	6 4		3 1	5 10		2 8	4 11
	3 7	6 7		3 2	6 0		2 9	5 1
	3 8	6 10		3 3	6 3		2 10	5 4
	3 9	6 12		3 4	6 6		2 11	5 8
	3 10	7 1		3 5	6 9		3 0	5 12
	3 11	7 4		3 6	6 13		3 1	6 1
	4 0	7 7		3 7	7 2		3 2	6 5
3 1	2 1	3 0		3 8	7 5		3 3	6 9
	2 2	3 3		3 9	7 8		3 4	6 13
	2 3	3 6		3 10	7 12		3 5	7 2
	2 4	3 9		3 11	8 1		3 6	7 6
	2 5	3 12		4 0	8 4		3 7	7 9
	2 6	4 1		4 1	8 7		3 8	7 13

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. 1.	F. 1.	st. lbs.	F. 1.	F. 1.	st. lbs.	F. 1.	F. 1.	st. lbs.
3 4	3 9	8 3	3 6	3 4	7 4	3 8	2 11	6 1
	3 10	8 6		3 5	7 9		3 0	6 6
	3 11	8 10		3 6	7 13		3 1	6 10
	4 0	9 0		3 7	8 3		3 2	7 1
	4 1	9 3		3 8	8 7		3 3	7 6
	4 2	9 7		3 9	8 11		3 4	7 10
	4 3	9 11		3 10	9 1		3 5	8 1
	4 4	10 1		3 11	9 5		3 6	8 5
3 5	2 5	4 1		4 0	9 9		3 7	8 10
	2 6	4 4		4 1	9 13		3 8	9 1
	2 7	4 8		4 2	10 3		3 9	9 5
	2 8	4 12		4 3	10 7		3 10	9 10
	2 9	5 2		4 4	10 11		3 11	10 0
	2 10	5 6		4 5	11 2		4 0	10 5
	2 11	5 10		4 6	11 6		4 1	10 9
	3 0	6 0	3 7	2 7	4 11		4 2	11 0
	3 1	6 4		2 8	5 1		4 3	11 5
	3 2	6 8		2 9	5 5		4 4	11 9
	3 3	6 12		2 10	5 10		4 5	12 0
	3 4	7 2		2 11	6 0		4 6	12 4
	3 5	7 6		3 0	6 4		4 7	12 9
	3 6	7 10		3 1	6 8		4 8	13 0
	3 7	7 13		3 2	6 13	3 9	2 9	5 8
	3 8	8 3		3 3	7 3		2 10	5 12
	3 9	8 7		3 4	7 7		2 11	6 3
	3 10	8 11		3 5	7 12		3 0	6 8
	3 11	9 1		3 6	8 2		3 1	6 13
	4 0	9 5		3 7	8 7		3 2	7 4
	4 1	9 9		3 8	8 11		3 3	7 8
	4 2	9 13		3 9	9 1		3 4	7 13
	4 3	10 3		3 10	9 5		3 5	8 4
	4 4	10 7		3 11	9 10		3 6	8 9
	4 5	10 11		4 0	10 0		3 7	9 0
3 6	2 6	4 6		4 1	10 5		3 8	9 5
	2 7	4 10		4 2	10 9		3 9	9 10
	2 8	5 0		4 3	10 13		3 10	10 0
	2 9	5 4		4 4	11 3		3 11	10 5
	2 10	5 8		4 5	11 8		4 0	10 10
	2 11	5 12		4 6	11 12		4 1	11 1
	3 0	6 2		4 7	12 3		4 2	11 6
	3 1	6 6	3 8	2 8	5 2		4 3	11 10
	3 2	6 10		2 9	5 6		4 4	12 1
	3 3	7 0		2 10	5 11		4 5	12 6

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
3 9	4 6	12 11	3 11	4 1	11 10	4 1	3 8	10 6
	4 7	13 1		4 2	12 1		3 9	10 12
	4 8	13 7		4 3	12 7		3 10	11 4
	4 9	13 12		4 4	12 12		3 11	11 10
3 10	2 10	6 0		4 5	13 3		4 0	12 2
	2 11	6 5		4 6	13 9		4 1	12 8
	3 0	6 10		4 7	14 0		4 2	13 0
	3 1	7 1		4 8	14 5		4 3	13 6
	3 2	7 6		4 9	14 11		4 4	13 12
	3 3	7 11		4 10	15 2		4 5	14 4
	3 4	8 2		4 11	15 8		4 6	14 10
	3 5	8 7	4 0	3 0	6 13		4 7	15 2
	3 6	8 12		3 1	7 4		4 8	15 8
	3 7	9 3		3 2	7 10		4 9	16 0
	3 8	9 8		3 3	8 1		4 10	16 6
	3 9	9 13		3 4	8 7		4 11	16 12
	3 10	10 5		3 5	8 13		5 0	17 4
	3 11	10 9		3 6	9 4		5 1	17 10
	4 0	11 0		3 7	9 10	4 2	3 2	7 13
	4 1	11 5		3 8	10 2		3 3	8 5
	4 2	11 10		3 9	10 7		3 4	8 11
	4 3	12 1		3 10	10 13		3 5	9 3
	4 4	12 6		3 11	11 5		3 6	9 10
	4 5	12 11		4 0	11 10		3 7	10 2
	4 6	13 2		4 1	12 2		3 8	10 8
	4 7	13 7		4 2	12 8		3 9	11 1
	4 8	13 12		4 3	13 0		3 10	11 7
	4 9	14 3		4 4	13 5		3 11	12 0
	4 10	14 8		4 5	13 11		4 0	12 6
3 11	2 11	6 6		4 6	14 2		4 1	12 12
	3 0	6 11		4 7	14 8		4 2	13 4
	3 1	7 2		4 8	15 0		4 3	13 11
	3 2	7 7		4 9	15 5		4 4	14 3
	3 3	7 13		4 10	15 11		4 5	14 9
	3 4	8 4		4 11	16 3		4 6	15 2
	3 5	8 9		5 0	16 9		4 7	15 8
	3 6	9 1	4 1	3 1	7 6		4 8	16 0
	3 7	9 6		3 2	7 12		4 9	16 7
	3 8	9 12		3 3	8 4		4 10	16 13
	3 9	10 3		3 4	8 10		4 11	17 5
	3 10	10 8		3 5	9 2		5 0	17 12
	3 11	11 0		3 6	9 8		5 1	18 4
	4 0	11 5		3 7	10 0		5 2	18 11

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
4 3	3 3	8 7	4 4	4 10	18 1	4 6	4 5	16 5
	3 4	8 13		4 11	18 8		4 6	16 13
	3 5	9 6		5 0	19 1		4 7	17 6
	3 6	9 12		5 1	19 8		4 8	18 0
	3 7	10 5		5 2	20 1		4 9	18 8
	3 8	10 12		5 3	20 8		4 10	19 1
	3 9	11 4		5 4	21 1		4 11	19 9
	3 10	11 11	4 5	3 5	9 10		5 0	20 3
	3 11	12 4		3 6	10 3		5 1	20 10
	4 0	12 10		3 7	10 10		5 2	21 4
	4 1	13 3		3 8	11 3		5 3	21 12
	4 2	13 10		3 9	11 11		5 4	22 5
	4 3	14 2		3 10	12 4		5 5	22 13
	4 4	14 9		3 11	12 11		5 6	23 7
	4 5	15 2		4 0	13 5	4 7	3 7	11 1
	4 6	15 8		4 1	13 12		3 8	11 9
	4 7	16 1		4 2	14 5		3 9	12 3
	4 8	16 8		4 3	14 13		3 10	12 11
	4 9	17 0		4 4	15 6		3 11	13 5
	4 10	17 7		4 5	16 0		4 0	13 13
	4 11	18 0		4 6	16 7		4 1	14 7
	5 0	18 6		4 7	17 0		4 2	15 1
	5 1	18 13		4 8	17 7		4 3	15 9
	5 2	19 6		4 9	18 1		4 4	16 3
	5 3	19 13		4 10	18 8		4 5	16 11
4 4	3 4	9 1		4 11	19 1		4 6	17 5
	3 5	9 8		5 0	19 9		4 7	17 13
	3 6	10 1		5 1	20 2		4 8	18 7
	3 7	10 8		5 2	20 9		4 9	19 1
	3 8	11 1		5 3	21 3		4 10	19 9
	3 9	11 8		5 4	21 10		4 11	20 3
	3 10	12 1		5 5	22 4		5 0	20 11
	3 11	12 8	4 6	3 6	10 5		5 1	21 5
	4 0	13 1		3 7	10 12		5 2	21 13
	4 1	13 8		3 8	11 6		5 3	22 7
	4 2	14 1		3 9	11 13		5 4	23 1
	4 3	14 8		3 10	12 7		5 5	23 9
	4 4	15 1		3 11	13 1		5 6	24 3
	4 5	15 8		4 0	13 8		5 7	24 11
	4 6	16 1		4 1	14 2	4 8	3 8	11 11
	4 7	16 8		4 2	14 10		3 9	12 5
	4 8	17 1		4 3	15 3		3 10	12 13
	4 9	17 8		4 4	15 11		3 11	13 7

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
4 8	4 0	14 2	4 9	5 7	26 4	4 11	5 2	24 3
	4 1	14 10		5 8	26 13		5 3	24 13
	4 2	15 4		5 9	27 8		5 4	25 8
	4 3	15 13	4 10	3 10	13 3		5 5	26 4
	4 4	16 7		3 11	13 12		5 6	26 13
	4 5	17 1		4 0	14 7		5 7	27 9
	4 6	17 10		4 1	15 2		5 8	28 4
	4 7	18 4		4 2	15 11		5 9	29 0
	4 8	18 13		4 3	16 6		5 10	29 9
	4 9	19 7		4 4	17 1		5 11	30 5
	4 10	20 1		4 5	17 11	5 0	4 0	14 13
	4 11	20 9		4 6	18 6		4 1	15 8
	5 0	21 4		4 7	19 1		4 2	16 4
	5 1	21 12		5 8	19 10		4 3	17 0
	5 2	22 6		4 9	20 5		4 4	17 10
	5 3	23 1		4 10	21 1		4 5	18 6
	5 4	23 9		4 11	21 10		4 6	19 1
	5 5	24 3		5 0	22 5		4 7	19 11
	5 6	24 12		5 1	23 0		4 8	20 7
	5 7	25 6		5 2	23 9		4 9	21 3
	5 8	26 1		5 3	24 4		4 10	21 13
4 9	3 9	12 8		5 4	24 13		4 11	22 9
	3 10	13 2		5 5	25 9		5 0	23 5
	3 11	13 9		5 6	26 4		5 1	24 0
	4 0	14 4		5 7	26 13		5 2	24 10
	4 1	14 13		5 8	27 8		5 3	25 6
	4 2	15 8		5 9	28 3		5 4	26 2
	4 3	16 2		5 10	28 13		5 5	26 12
	4 4	16 11	4 11	3 11	14 1		5 6	27 7
	4 5	17 6		4 0	14 10		5 7	28 3
	4 6	18 1		4 1	15 6		5 8	28 13
	4 7	18 12		4 2	16 1		5 9	29 9
	4 8	19 6		4 3	16 11		5 10	30 5
	4 9	20 0		4 4	17 6		5 11	31 1
	4 10	20 8		4 5	18 2		6 0	31 11
	4 11	21 3		4 6	18 11	5 1	4 1	15 12
	5 0	21 12		4 7	19 7		4 2	16 8
	5 1	22 7		4 8	20 2		4 3	17 4
	5 2	23 2		4 9	20 12		4 4	18 0
	5 3	23 10		4 10	21 7		4 5	18 10
	5 4	24 5		4 11	22 3		4 6	19 6
	5 5	25 0		5 0	22 12		4 7	20 2
	5 6	25 9		5 1	23 8		4 8	20 13

L.	G.	W.	L.	G.	W.	L.	G.	W.
P. I.	P. I.	st. lbs.	P. I.	P. I.	st. lbs.	P. I.	P. I.	st. lbs.
5 1	4 9	21 9	5 3	4 4	18 7	5 4	5 11	34 0
	4 10	22 5		4 5	19 4		6 0	34 11
	4 11	23 1		4 6	20 1		6 1	35 8
	5 0	23 11		4 7	20 12		6 2	36 3
	5 1	24 8		4 8	21 9		6 3	37 0
	5 2	25 4		4 9	22 6		6 4	37 12
	5 3	26 0		4 10	23 3	5 5	4 5	19 12
	5 4	26 10		4 11	24 0		4 6	20 9
	5 5	27 6		5 0	24 11		4 7	21 7
	5 6	28 2		5 1	25 8		4 8	22 4
	5 7	28 12		5 2	26 5		4 9	23 2
	5 8	29 9		5 3	27 1		4 10	23 13
	5 9	30 5		5 4	27 12		4 11	24 11
	5 10	31 1		5 5	28 9		5 0	25 8
	5 11	31 11		5 6	29 6		5 1	26 6
	6 0	32 7		5 7	30 3		5 2	27 3
	6 1	33 4		5 8	31 0		5 3	28 1
5 2	4 2	16 11		5 9	31 10		5 4	28 12
	4 3	17 7		5 10	32 7		5 5	29 10
	4 4	18 4		5 11	33 4		5 6	30 7
	4 5	19 0		6 0	34 1		5 7	31 4
	4 6	19 11		6 1	34 12		5 8	32 2
	4 7	20 7		6 2	35 9		5 9	32 13
	4 8	21 4		6 3	36 7		5 10	33 10
	4 9	22 0	5 4	4 4	18 11		5 11	34 7
	4 10	22 11		4 5	19 8		6 0	35 4
	4 11	23 7		4 6	20 5		6 1	36 2
	5 0	24 4		4 7	21 2		6 2	36 13
	5 1	25 0		4 8	21 13		6 3	37 10
	5 2	25 11		4 9	22 11		6 4	38 6
	5 3	26 7		4 10	23 8		6 5	39 3
	5 4	27 4		4 11	24 6	5 8	4 6	20 13
	5 5	28 0		5 0	25 3		4 7	21 10
	5 6	28 11		5 1	26 0		4 8	22 8
	5 7	29 7		5 2	26 11		4 9	23 6
	5 8	30 4		5 3	27 8		4 10	24 4
	5 9	31 0		5 4	28 6		4 11	25 2
	5 10	31 11		5 5	29 3		5 0	26 0
	5 11	32 7		5 6	30 0		5 1	26 12
	6 0	33 4		5 7	30 11		5 2	27 10
	6 1	34 0		5 8	31 8		5 3	28 7
	6 2	34 11		5 9	32 5		5 4	29 5
5 3	4 3	17 11		5 10	33 2		5 5	30 3

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
5 6	5 6	31 1	5 8	5 1	27 9	5 9	6 8	45 7
	5 7	31 12		5 2	28 8		6 9	46 6
	5 8	32 10		5 3	29 6	5 10	4 10	25 9
	5 9	33 7		5 4	30 5		4 11	26 8
	5 10	34 5		5 5	31 3		5 0	27 7
	5 11	35 3		5 6	32 2		5 1	28 6
	6 0	36 1		5 7	33 0		5 2	29 5
	6 1	36 12		5 8	33 13		5 3	30 4
	6 2	37 10		5 9	34 11		5 4	31 3
	6 3	38 7		5 10	35 10		5 5	32 3
	6 4	39 5		5 11	36 8		5 6	33 2
	6 5	40 3		6 0	37 7		5 7	34 1
	6 6	41 1		6 1	38 5		5 8	35 0
5 7	4 7	22 1		6 2	39 4		5 9	35 13
	4 8	22 13		6 3	40 2		5 10	36 13
	4 9	23 11		6 4	41 1		5 11	37 12
	4 10	24 9		6 5	41 13		6 0	38 11
	4 11	25 7		6 6	42 12		6 1	39 10
	5 0	26 5		6 7	43 10		6 2	40 9
	5 1	27 3		6 8	44 9		6 3	41 8
	5 2	28 2	5 9	4 9	24 6		6 4	42 7
	5 3	29 0		4 10	25 4		6 5	43 7
	5 4	29 12		4 11	26 3		6 6	44 6
	5 5	30 10		5 0	27 2		6 7	45 5
	5 6	31 8		5 1	28 1		6 8	46 4
	5 7	32 7		5 2	29 0		6 9	47 3
	5 8	33 5		5 3	29 12		6 10	48 3
	5 9	34 3		5 4	30 11	5 11	4 11	26 13
	5 10	35 1		5 5	31 10		5 0	27 12
	5 11	35 13		5 6	32 9		5 1	28 12
	6 0	36 11		5 7	33 8		5 2	29 11
	6 1	37 9		5 8	34 7		5 3	30 11
	6 2	38 8		5 9	35 6		5 4	31 10
	6 3	39 6		5 10	36 4		5 5	32 10
	6 4	40 4		5 11	37 3		5 6	33 9
	6 5	41 2		6 0	38 2		5 7	34 9
	6 6	42 0		6 1	39 1		5 8	35 8
	6 7	42 13		6 2	40 0		5 9	36 8
5 8	4 8	23 3		6 3	40 12		5 10	37 7
	4 9	24 1		6 4	41 11		5 11	38 7
	4 10	25 0		6 5	42 10		6 0	39 6
	4 11	25 12		6 6	43 9		6 1	40 6
	5 0	26 11		6 7	44 8		6 2	41 5

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
5 11	6 3	42 5	6 1	5 10	38 9	6 3	5 5	34 6
	6 4	43 4		5 11	39 10		5 6	35 7
	6 5	44 4		6 0	40 10		5 7	36 8
	6 6	45 3		6 1	41 10		5 8	37 9
	6 7	46 3		6 2	42 11		5 9	38 10
	6 8	47 2		6 3	43 11		5 10	39 11
	6 9	48 2		6 4	44 11		5 11	40 13
	6 10	49 1		6 5	45 12		6 0	42 0
	6 11	50 1		6 6	46 12		6 1	43 1
6 0	5 0	28 2		6 7	47 12		6 2	44 2
	5 1	29 2		6 8	48 13		6 3	45 3
	5 2	30 2		6 9	49 13		6 4	46 4
	5 3	31 2		6 10	51 0		6 5	47 6
	5 4	32 2		6 11	52 0		6 6	48 7
	5 5	33 2		7 0	53 0		6 7	49 8
	5 6	34 2		7 1	54 1		6 8	50 9
	5 7	35 2	6 2	5 2	30 12		6 9	51 10
	5 8	36 2		5 3	31 12		6 10	52 11
	5 9	37 2		5 4	32 13		6 11	53 13
	5 10	38 2		5 5	34 0		7 0	55 0
	5 11	39 2		5 6	35 1		7 1	56 1
	6 0	40 2		5 7	36 1		7 2	57 2
	6 1	41 2		5 8	37 2		7 3	58 3
	6 2	42 2		5 9	38 3	6 4	5 4	33 10
	6 3	43 2		5 10	39 4		5 5	34 11
	6 4	44 2		5 11	40 4		5 6	35 13
	6 5	45 2		6 0	41 5		5 7	37 1
	6 6	46 2		6 1	42 6		5 8	38 2
	6 7	47 2		6 2	43 9		5 9	39 3
	6 8	48 2		6 3	44 7		5 10	40 5
	6 9	49 2		6 4	45 8		5 11	41 7
	6 10	50 2		6 5	46 9		6 0	42 8
	6 11	51 2		6 6	47 10		6 1	43 10
	7 0	52 2		6 7	48 10		6 2	44 12
6 1	5 1	29 7		6 8	49 11		6 3	46 0
	5 2	30 7		6 9	50 12		6 4	47 2
	5 3	31 7		6 10	51 13		6 5	48 3
	5 4	32 7		6 11	52 13		6 6	49 5
	5 5	33 8		7 0	54 0		6 7	50 6
	5 6	34 8		7 1	55 1		6 8	51 8
	5 7	35 8		7 2	56 2		6 9	52 10
	5 8	36 9	6 3	5 3	32 4		6 10	53 11
	5 9	37 9		5 4	33 5		6 11	54 12

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
6 4	7 0	56 0	6 6	6 7	52 2	6 8	6 2	47 0
	7 1	57 2		6 8	53 5		6 3	48 10
	7 2	58 3		6 9	54 7		6 4	50 0
	7 3	59 5		6 10	55 10		6 5	51 3
	7 4	60 6		6 11	56 12		6 6	52 7
6 5	5 5	35 3		7 0	58 1		6 7	53 11
	5 6	36 5		7 1	59 3		6 8	55 1
	5 7	37 7		7 2	60 6		6 9	56 4
	5 8	38 9		7 3	61 8		6 10	57 8
	5 9	39 11		7 4	62 11		6 11	58 12
	5 10	40 13		7 5	63 13		7 0	60 2
	5 11	42 1		7 6	65 2		7 1	61 5
	6 0	43 4	6 7	5 7	38 5		7 2	62 9
	6 1	44 6		5 8	39 8		7 3	63 13
	6 2	45 8		5 9	40 10		7 4	65 3
	6 3	46 10		5 10	41 13		7 5	66 6
	6 4	47 12		5 11	43 2		7 6	67 10
	6 5	49 1		6 0	44 5		7 7	69 0
	6 6	50 3		6 1	45 8		7 8	70 4
	6 7	51 5		6 2	46 12	6 9	5 9	41 7
	6 8	52 7		6 3	48 1		5 10	42 11
	6 9	53 9		6 4	49 4		5 11	44 1
	6 10	54 11		6 5	50 7		6 0	45 5
	6 11	55 13		6 6	51 10		6 1	46 10
	7 0	57 2		6 7	53 0		6 2	48 0
	7 1	58 4		6 8	54 3		6 3	49 4
	7 2	59 6		6 9	55 6		6 4	50 9
	7 3	60 8		6 10	56 9		6 5	51 13
	7 4	61 10		6 11	57 12		6 6	53 3
	7 5	62 13		7 0	59 1		6 7	54 8
6 6	5 6	36 10		7 1	60 4		6 8	55 12
	5 7	38 13		7 2	61 7		6 9	57 3
	5 8	39 2		7 3	62 10		6 10	58 7
	5 9	40 5		7 4	63 13		6 11	59 11
	5 10	41 8		7 5	65 2		7 0	61 1
	5 11	42 10		7 6	66 5		7 1	62 6
	6 0	43 13		7 7	67 9		7 2	63 10
	6 1	45 2	6 8	5 8	39 12		7 3	65 0
	6 2	46 4		5 9	41 1		7 4	66 5
	6 3	47 6		5 10	42 5		7 5	67 9
	6 4	48 9		5 11	43 9		7 6	68 13
	6 5	49 11		6 0	44 13		7 7	70 4
	6 6	51 0		6 1	46 2		7 8	71 8

L.	G.	W.	L.	G.	W.	L.	G.	W.
P. I.	P. I.	st. lbs.	P. I.	P. I.	st. lbs.	P. I.	P. I.	st. lbs.
6 9	7 9	72 13	6 11	7 4	68 8	7 1	6 11	63 4
6 10	5 10	43 2		7 5	70 0		7 0	64 11
	5 11	44 7		7 6	71 6		7 1	66 4
	6 0	45 12		7 7	72 11		7 2	67 11
	6 1	47 3		7 8	74 3		7 3	69 4
	6 2	48 8		7 9	75 8		7 4	70 11
	6 3	49 13		7 10	77 0		7 5	72 4
	6 4	51 4		7 11	78 5		7 6	73 11
	6 5	52 9	7 0	6 0	46 8		7 7	75 4
	6 6	54 0		6 1	48 0		7 8	76 11
	6 7	55 5		6 2	49 6		7 9	78 4
	6 8	56 10		6 3	50 12		7 10	79 11
	6 9	58 1		6 4	52 5		7 11	81 4
	6 10	59 6		6 5	53 11		8 0	82 11
	6 11	60 11		6 6	55 3		8 1	84 4
	7 0	62 2		6 7	56 9	7 2	6 2	50 3
	7 1	63 7		6 8	58 2		6 3	51 10
	7 2	64 12		6 9	59 8		6 4	53 4
	7 3	66 3		6 10	61 0		6 5	54 11
	7 4	67 8		6 11	62 6		6 6	56 5
	7 5	68 13		7 0	63 13		6 7	57 12
	7 6	70 4		7 1	65 5		6 8	59 6
	7 7	71 9		7 2	66 11		6 9	61 0
	7 8	73 0		7 3	68 3		6 10	62 7
	7 9	74 5		7 4	69 10		6 11	64 1
	7 10	75 10		7 5	71 2		7 0	65 8
6 11	5 11	44 12		7 6	72 8		7 1	67 2
	6 0	46 3		7 7	74 0		7 2	68 10
	6 1	47 9		7 8	75 7		7 3	70 3
	6 2	49 0		7 9	76 13		7 4	71 10
	6 3	50 6		7 10	78 5		7 5	73 4
	6 4	51 11		7 11	79 11		7 6	74 12
	6 5	53 3		8 0	81 3		7 7	76 5
	6 6	54 9	7 1	6 1	48 5		7 8	77 13
	6 7	56 0		6 2	49 11		7 9	79 7
	6 8	57 6		6 3	51 4		7 10	81 0
	6 9	58 11		6 4	52 11		7 11	82 8
	6 10	60 3		6 5	54 4		8 0	84 1
	6 11	61 9		6 6	55 11		8 1	85 9
	7 0	63 0		6 7	57 4		8 2	87 3
	7 1	64 6		6 8	58 11	7 3	6 3	52 1
	7 2	65 11		6 9	60 4		6 4	53 9
	7 3	67 3		6 10	61 11		6 5	55 3

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
7 3	6 6	56 11	7 4	8 1	88 8	7 6	7 8	82 10
	6 7	58 6		8 2	90 3		7 9	84 0
	6 8	60 0		8 3	91 12		7 10	86 3
	6 9	61 8		8 4	93 8		7 11	88 0
	6 10	63 3	7 5	6 5	55 13		8 0	89 11
	6 11	64 11		6 6	57 8		8 1	91 8
	7 0	66 5		6 7	59 4		8 2	93 4
	7 1	68 0		6 8	61 0		8 3	95 1
	7 2	69 8		6 9	62 10		8 4	96 12
	7 3	71 3		6 10	64 5		8 5	98 9
	7 4	72 11		6 11	66 0		8 6	100 6
	7 5	74 5		7 0	67 10	7 7	6 7	59 13
	7 6	75 13		7 1	69 6		6 8	61 10
	7 7	77 8		7 2	71 2		6 9	63 7
	7 8	79 2		7 3	72 12		6 10	65 5
	7 9	80 10		7 4	74 8		6 11	67 2
	7 10	82 5		7 5	76 6		7 0	69 0
	7 11	83 13		7 6	77 13		7 1	70 11
	8 0	85 7		7 7	79 9		7 2	72 8
	8 1	87 2		7 8	81 5		7 3	74 6
	8 2	88 10		7 9	83 1		7 4	76 3
	8 3	90 5		7 10	84 11		7 5	78 1
7 4	6 4	54 0		7 11	86 6		7 6	79 13
	6 5	55 9		8 0	88 2		7 7	81 11
	6 6	57 4		8 1	89 12		7 8	83 9
	6 7	58 13		8 2	91 8		7 9	85 7
	6 8	60 8		8 3	93 4		7 10	87 5
	6 9	62 3		8 4	95 0		7 11	89 3
	6 10	63 12		8 5	96 10		8 0	91 1
	6 11	65 7	7 8	6 6	57 13		8 1	92 13
	7 0	67 2		6 7	59 9		8 2	94 11
	7 1	68 11		6 8	61 6		8 3	96 9
	7 2	70 6		6 9	63 3		8 4	98 7
	7 3	72 1		6 10	64 13		8 5	100 5
	7 4	73 11		6 11	66 9		8 6	102 3
	7 5	75 6		7 0	68 6		8 7	104 1
	7 6	77 1		7 1	70 3	7 8	6 8	62 0
	7 7	78 10		7 2	71 13		6 9	63 12
	7 8	80 5		7 3	73 10		6 10	65 10
	7 9	82 0		7 4	75 7		6 11	67 8
	7 10	83 9		7 5	77 4		7 0	69 7
	7 11	85 4		7 6	79 2		7 1	71 5
	8 0	86 13		7 7	80 13		7 2	73 3

L.	G.	W.	L.	G.	W.	L.	G.	W.
P. I.	P. I.	st. lbs.	P. I.	P. I.	st. lbs.	P. I.	P. I.	st. lbs.
7 8	7 3	75 1	7 10	6 10	66 4	7 11	8 5	105 8
	7 4	77 0		6 11	68 4		8 6	107 7
	7 5	78 12		7 0	70 4		8 7	109 8
	7 6	80 10		7 1	72 4		8 8	111 9
	7 7	82 8		7 2	74 4		8 9	113 10
	7 8	84 6		7 3	76 4		8 10	115 10
	7 9	86 4		7 4	78 4		8 11	117 11
	7 10	88 3		7 5	80 4	8 0	7 0	71 1
	7 11	90 1		7 6	82 4		7 1	73 2
	8 0	92 0		7 7	84 4		7 2	75 3
	8 1	93 12		7 8	86 4		7 3	77 4
	8 2	95 10		7 9	88 4		7 4	79 5
	8 3	97 8		7 10	90 4		7 5	81 6
	8 4	99 7		7 11	92 4		7 6	83 7
	8 5	101 5		8 0	94 4		7 7	85 9
	8 6	103 3		8 1	96 4		7 8	87 10
	8 7	105 1		8 2	98 4		7 9	89 11
	8 8	107 0		8 3	100 4		7 10	91 13
7 9	6 9	64 2		8 4	102 4		7 11	94 0
	6 10	66 1		8 5	104 4		8 0	96 2
	6 11	68 0		8 6	106 4		8 1	98 4
	7 0	69 13		8 7	108 4		8 2	100 5
	7 1	71 12		8 8	110 4		8 3	102 6
	7 2	73 11		8 9	112 4		8 4	104 8
	7 3	75 10		8 10	114 4		8 5	106 9
	7 4	77 9	7 11	6 11	68 9		8 6	108 10
	7 5	79 8		7 0	70 9		8 7	110 12
	7 6	81 7		7 1	72 10		8 8	112 13
	7 7	83 6		7 2	74 10		8 9	115 0
	7 8	85 5		7 3	76 11		8 10	117 2
	7 9	87 5		7 4	78 12		8 11	119 3
	7 10	89 5		7 5	80 12		9 0	121 5
	7 11	91 4		7 6	82 13	8 1	7 1	73 8
	8 0	93 3		7 7	85 0		7 2	75 10
	8 1	95 2		7 8	87 0		7 3	77 12
	8 2	97 1		7 9	89 1		7 4	80 0
	8 3	99 0		7 10	91 1		7 5	82 2
	8 4	100 13		7 11	93 2		7 6	84 4
	8 5	102 12		8 0	95 3		7 7	86 6
	8 6	104 11		8 1	97 4		7 8	88 8
	8 7	106 10		8 2	99 4		7 9	90 10
	8 8	108 9		8 3	101 5		7 10	92 12
	8 9	110 8		8 4	103 6		7 11	95 0

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
8 1	8 0	97 2	8 3	7 7	87 10	8 4	9 2	131 14
	8 1	99 4		7 8	89 13		9 3	134 1
	8 2	101 6		7 9	92 2		9 4	136 5
	8 3	103 8		7 10	94 6	8 5	7 5	84 4
	8 4	105 10		7 11	96 9		7 6	86 8
	8 5	107 12		8 0	98 12		7 7	88 13
	8 6	110 0		8 1	101 2		7 8	91 3
	8 7	112 2		8 2	103 5		7 9	93 8
	8 8	114 4		8 3	105 9		7 10	95 13
	8 9	116 6		8 4	107 12		7 11	98 3
	8 10	118 8		8 5	110 1		8 0	100 8
	8 11	120 10		8 6	112 4		8 1	102 12
	9 0	122 12		8 7	114 8		8 2	105 3
	9 1	125 0		8 8	116 11		8 3	107 8
8 2	7 2	76 2		8 9	119 0		8 4	109 12
	7 3	78 4		8 10	121 4		8 5	112 4
	7 4	80 7		8 11	123 7		8 6	114 8
	7 5	82 9		9 0	125 10		8 7	116 13
	7 6	84 12		9 1	128 0		8 8	119 3
	7 7	87 1		9 2	130 3		8 9	121 8
	7 8	89 3		9 3	132 7		8 10	124 13
	7 9	91 6	8 4	7 4	81 3		8 11	127 3
	7 10	93 9		7 5	83 11		9 0	129 8
	7 11	95 11		7 6	86 1		9 1	131 13
	8 0	98 0		7 7	88 5		9 2	134 3
	8 1	100 3		7 8	90 9		9 3	136 8
	8 2	102 6		7 9	92 13		9 4	138 13
	8 3	104 8		7 10	95 3		9 5	141 4
	8 4	106 11		7 11	97 7	8 6	7 6	87 2
	8 5	108 13		8 0	99 11		7 7	89 7
	8 6	111 2		8 1	102 1		7 8	91 12
	8 7	113 5		8 2	104 5		7 9	94 3
	8 8	115 7		8 3	106 9		7 10	96 9
	8 9	117 10		8 4	108 13		7 11	99 0
	8 10	119 13		8 5	111 3		8 0	101 5
	8 11	122 1		8 6	113 7		8 1	103 11
	9 0	124 4		8 7	115 11		8 2	106 2
	9 1	126 7		8 8	118 1		8 3	108 7
	9 2	128 10		8 9	120 5		8 4	110 13
8 3	7 3	78 11		8 10	122 9		8 5	113 4
	7 4	81 0		8 11	124 13		8 6	115 10
	7 5	83 3		9 0	127 3		8 7	118 1
	7 6	85 6		9 1	129 7		8 8	120 6

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
8 8	8 9	124 12	8 8	8 4	112 12	8 10	7 11	101 12
	8 10	127 4		8 5	115 5		8 0	104 6
	8 11	129 9		8 6	117 11		8 1	107 0
	9 0	132 0		8 7	120 4		8 2	109 8
	9 1	134 6		8 8	122 11		8 3	112 2
	9 2	136 11		8 9	125 3		8 4	114 10
	9 3	139 2		8 10	127 10		8 5	117 4
	9 4	141 8		8 11	130 2		8 6	119 12
	9 5	143 13		9 0	132 9		8 7	122 6
	9 6	146 5		9 1	135 2		8 8	125 0
8 7	7 7	90 1		9 2	137 8		8 9	127 8
	7 8	92 7		9 3	140 1		8 10	130 2
	7 9	94 13		9 4	142 8		8 11	132 10
	7 10	97 5		9 5	145 0		9 0	135 4
	7 11	99 11		9 6	147 7		9 1	137 12
	8 0	102 3		9 7	150 0		9 2	140 6
	8 1	104 9		9 8	152 7		9 3	143 0
8 1	8 2	107 1	8 9	7 9	96 2		9 4	145 8
	8 3	109 7		7 10	98 9		9 5	148 2
	8 4	111 13		7 11	101 2		9 6	150 10
	8 5	114 5		8 0	103 9		9 7	153 4
	8 6	116 11		8 1	106 3		9 8	155 12
	8 7	119 3		8 2	108 10		9 9	158 6
	8 8	121 9		8 3	111 3		9 10	161 0
	8 9	124 1		8 4	113 11	8 11	7 11	102 7
	8 10	126 7		8 5	116 4		8 10	105 1
	8 11	128 13		8 6	118 11		8 11	107 10
	9 0	131 5		8 7	121 5		8 12	110 4
	9 1	133 11		8 8	123 12		8 3	112 13
	9 2	136 3		8 9	126 6		8 4	115 8
	9 3	138 9		8 10	128 13		8 5	118 2
	9 4	141 1		8 11	131 6		8 6	120 11
	9 5	143 7		9 0	133 13		8 7	123 6
	9 6	145 13		9 1	136 7		8 8	126 0
	9 7	148 5		9 2	139 0		8 9	128 9
8 8	7 18	93 1		9 3	141 7		8 10	131 4
	7 19	95 7		9 4	144 1		8 11	133 13
	7 20	98 0		9 5	146 8		9 0	136 7
	7 21	100 6		9 6	149 1		9 1	139 2
	8 0	102 13		9 7	151 9		9 2	141 10
	8 1	105 6		9 8	154 2		9 3	144 5
	8 2	107 12		9 9	156 10		9 4	147 0
8 3	8 3	110 5	8 10	7 10	99 4		9 5	149 8

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
8 11	9 6	152 3	9 1	9 1	141 10	9 3	8 8	129 9
	9 7	154 12		9 2	144 6		8 9	132 7
	9 8	157 7		9 3	147 3		8 10	135 5
	9 9	160 1		9 4	150 0		8 11	138 4
	9 10	162 10		9 5	152 11		9 0	141 2
	9 11	165 5		9 6	155 8		9 1	144 0
8 0	8 0	105 11		9 7	158 4		9 2	146 12
	8 1	108 6		9 8	161 1		9 3	149 11
	8 2	111 1		9 9	163 12		9 4	152 9
	8 3	113 10		9 10	166 9		9 5	155 7
	8 4	116 5		9 11	169 6		9 6	158 5
	8 5	119 1		10 0	171 3		9 7	161 4
	8 6	121 10		10 1	174 0		9 8	164 2
	8 7	124 6	9 2	8 12	112 8		9 9	167 0
	8 8	127 1		8 13	115 4		9 10	169 12
	8 9	129 10		8 4	118 1		9 11	172 11
	8 10	132 6		8 5	120 11		10 0	175 9
	8 11	135 2		8 6	123 8		10 1	178 7
	9 0	137 11		8 7	126 5		10 2	181 5
	9 1	140 7		8 8	129 1		10 3	184 4
	9 2	143 3		8 9	131 12	9 4	8 4	118 13
	9 3	145 13		8 10	134 9		8 5	121 11
	9 4	148 9		8 11	137 5		8 6	124 10
	9 5	151 5		9 0	140 2		8 7	127 9
	9 6	154 1		9 1	142 13		8 8	130 8
	9 7	156 12		9 2	145 10		8 9	133 7
	9 8	159 8		9 3	148 7		8 10	136 5
	9 9	162 4		9 4	151 5		8 11	139 4
	9 10	165 0		9 5	154 2		9 0	142 3
	9 11	167 10		9 6	157 0		9 1	145 2
	10 0	170 7		9 7	159 11		9 2	148 1
9 1	8 1	109 2		9 8	162 9		9 3	151 0
	8 2	111 12		9 9	165 6		9 4	153 13
	8 3	114 8		9 10	168 4		9 5	156 11
	8 4	117 4		9 11	171 1		9 6	159 10
	8 5	120 0		10 0	173 13		9 7	162 9
	8 6	122 10		10 1	176 9		9 8	165 8
	8 7	125 6		10 2	179 7		9 9	168 7
	8 8	128 2	9 3	8 13	115 4		9 10	171 5
	8 9	130 12		8 14	118 2		9 11	174 4
	8 10	133 8		8 15	121 0		10 0	177 3
	8 11	136 4		8 16	123 12		10 1	180 2
	9 0	139 0		8 17	126 11		10 2	183 1

L.	G.	W.	L.	G.	W.	L.	G.	W.
F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.	F. I.	F. I.	st. lbs.
9 4	10 3	186 0	9 6	9 10	174 6	9 8	9 5	162 9
	10 4	188 13		9 11	177 6		9 6	165 1
9 5	8 5	122 8		10 0	180 7		9 7	168 2
	8 6	125 7		10 1	183 7		9 8	171 3
	8 7	128 7		10 2	186 7		9 9	174 4
	8 8	131 6		10 3	189 7		9 10	177 5
	8 9	134 6		10 4	192 7		9 11	180 6
	8 10	137 5		10 5	195 7		10 0	183 7
	8 11	140 5		10 6	198 8		10 1	186 8
	9 0	143 4	9 7	8 7	130 0		10 2	189 9
	9 1	146 4		8 8	133 1		10 3	192 10
	9 2	149 3		8 9	136 2		10 4	195 11
	9 3	152 3		8 10	139 3		10 5	198 12
	9 4	155 2		8 11	142 4		10 6	201 13
	9 5	158 2		9 0	145 5		10 7	205 0
	9 6	161 1		9 1	148 5		10 8	208 1
	9 7	164 1		9 2	151 6	9 9	8 9	138 9
	9 8	167 0		9 3	154 7		8 10	141 10
	9 9	170 0		9 4	157 8		8 11	144 11
	9 10	172 13		9 5	160 9		9 0	147 12
	9 11	175 18		9 6	163 10		9 1	151 0
	10 0	178 12		9 7	166 11		9 2	154 1
	10 1	181 12		9 8	169 12		9 3	157 2
	10 2	184 11		9 9	172 13		9 4	160 3
	10 3	187 11		9 10	176 0		9 5	163 4
	10 4	190 10		9 11	179 1		9 6	166 5
	10 5	193 10		10 0	182 2		9 7	169 6
9 6	8 6	126 4		10 1	185 2		9 8	172 7
	8 7	129 4		10 2	188 3		9 9	175 9
	8 8	132 4		10 3	191 4		9 10	178 10
	8 9	135 4		10 4	194 5		9 11	181 12
	8 10	138 4		10 5	197 6		10 0	184 13
	8 11	141 4		10 6	200 7		10 1	188 1
	9 0	144 5		10 7	203 8		10 2	191 2
	9 1	147 5	9 8	8 8	134 5		10 3	194 3
	9 2	150 5		8 9	137 6		10 4	197 5
	9 3	153 5		8 10	140 7		10 5	200 6
	9 4	156 5		8 11	143 8		10 6	203 7
	9 5	159 5		9 0	146 9		10 7	206 8
	9 6	162 6		9 1	149 10		10 8	209 9
	9 7	165 6		9 2	152 11		10 9	212 11
	9 8	168 6		9 3	155 12			
	9 9	171 6		9 4	158 13			

To calculate Tables to suit all dimensions, would render them too voluminous, (so that all fractions or parts of inches are omitted), or to suit all constitutions and state of ripeness is impossible, as they are not solid bodies. Those beasts whose lengths meets or measures equal to the mean girt, is handsome as to symmetry, and such will pay the grazier better for their keep than the long-sided beasts, whose insides seldom proves well for the butcher. These tables are a true test for sound well-fed cattle, and if not sound nor well fed, their weights by measure will not paralyze them, as may be learnt by the following memorandums. With the assistance of these tables, and a graduated tape, young graziers and butchers may ascertain the weight to a few pounds; yet much practical knowledge is requisite, with a good eye, to take a mental estimation, and fingers accustomed to handle, so as to ascertain what good points the animal possesses, and how made up as to inside ripeness. Suppose two bullocks of equal lengths, and one girts one inch more than the other, that difference is not visible to the most experienced acute-eyed salesman living, that one inch will make twenty pound difference in the weight of a small ox of seven feet long; and it will be seen by inspecting the tables, that a steer of 7 feet long, and 6 feet girt, weighs little more than half of one of same length and 8 feet girt. This

I think throws some light upon the offence discussed subject, whether small or large cattle pays best, the head and other offal will be in proportion to the size of the animal; yet there is but one inside to a steer of 100 stone weight, but there is two to two steers of 50 stone each. As the animal fattens the blood decreases, as well as the room in the inside, until the lights have scarcely room to act—hence fat animals being short winded—hence their always proving well to the butcher, and sometimes outweighing the tabular calculations.

st. lb.

1st. A calf, out of a French cow, and got by a Devon bull, when 21 weeks old it was killed at Warminster; the 4 quarters weighed..... 24 12
skin, 3st. 1lb.; fat, 2st. 6lb.; head, 1st. 6lb.; blood, 1st. 6lb.; feet, 6st. 8lb.; henge, pluck, or strap, 1st. 1lb.—Total offal 10 0

2nd. A Fifeshire runt, 5ft. 6in. long, 6ft. 3in. girt, weight..... 37 11
head and palate, 1st. 3lb.; tongue, 5lb.; feet, 1st.; sweetbread and kidneys, 2lb.; skirts, 4lb.; tallow, 6st. 12lb.; hide, 5st. 10lb.; pluck, 1st. 5lb.; blood, 1st. 5lb.; entrails, 6st. 4lb.—Total offal 24 9
as ratio to the 4 quarters is as 12,168 is to 17,867.

3rd. A Fifeshire ox, length 6ft. 10ins,

st. lb.
 girt 6 foot; weight 39 7
 He was so small at girt, that his weight exceeds
 the tables; hide weighed 5st. 8lb.

4th. A Galway steer, poll'd, viz. no
 horns; weight 40 10

5th. Another Scotch runt, length 6ft.
 3in.; girt 6ft. 1in.; weight 42 4
 His hide weighed 5st. 2lb.

6th. A North Devon steer, only four-
 teen months old; 44 11
 head, 1st. 12lb.; feet, 2st.; tallow, 3st.
 18lb.; entrails, 6st. 3lb.

7th. Scotch runt, 6ft. 8in. by 6ft. girt,
 weight 46 4

He was killed too soon.

8th. An Highland or Kylo ox, long
 horns and hair; 4 quarters weighed, 440 8
 fat, 5st. 12lb.; hide and horns, 4st. 11lb.;
 head and tongue, 2st. 5lb.; feet, 1st. 2lb.;
 heart, skirts, sweetbread, milt and the most of
 kidneys, 10lb.; tripe (without fat) freed,
 feck, gall, liver, lights, bladder, and
 entrails, 4st. 3lb.; blood, 2st. 6lb.; contents
 of entrails, 3st. 6lb. Total of offal, 25 10

Ratio as 10,5 to 19,6. There is not one in all
 these memorandums that proved a worse ratio
 than this, which argues in favour of larger stock.

9th. A Devon steer, 6ft. 7in. by 6ft. 7in.,
 weighed 47 7

	st.	lb.
10th. Do. 6ft. 8in. by 6ft. 3in. weighed	49	13
head and tongue, 2st. 8lb.; hide, 6st. 4lb.		
11th. Do. 6ft. 7in. by 6ft. 7in. weighed	50	8
12th. Do. 6ft. 8in. by 6ft. 3in., weighed, (small at girt).....	51	6
head and palate, 1st. 6lb.; tongue, 6lb.; feet, 1st. 2lb.; blood, 1st. 6lb.; pluck, 1st. 8lb.; hide, 6st. 4lb.; tallow, 8st.; entrails, 7st. 6lb.	27	2
Ratio of offal to beef is as 10½ is to 19½.		
13th. Was two Devonshire steers, 6ft. 10in. by 6ft. 10in. each	52	6
head and tongue of each 2st. 8lb.; pluck, 2st. 12lb.; blood, 3st.; feet, 1st. 10lb.; paunch, 4st. 4lb.; hide of one, 5st. 2lb.; and the other, 6st. 6lb.		
14th. Devonshire steer, 7ft. 8in. by 7ft. 10in.; weight.....	57	0
These last six were killed from bare pasturage, at from three to four years' old, of course not made up; hence some of them weighing short of tables.		
15th. A Scotch runt, short necked, 6ft. 3in. by 7ft. 6in.; weight	64	0
16th. Two Devonshire steers, 7ft. 4in. by 7ft. 4in.; weight of each.....	65	0
hides of each, 6st. 6lb.		
17th. A Sussex shew heifer; 7ft. 1in. by 7ft. 1in.; weighed.....	69	1

st. lb.

She must have lost weight in the caravan: I had some of her, the fat of which was so mellow as to eat like marrow.

18th. A steer; 7ft. 6in. by 8ft. 8in.; weighed 74 5½
head, 2st. 2lb.; tongue, 9lb.; feet, 1st. 6lb.; sweetbread and kidneys, 5½lb.; pluck, 2st. 2½lb.; blood 2st. 7lb.; hide, 8st.; tallow, 12st. 4lb.; entrails, 8st. 8lb. 38 2

Ratio of the offal as 10, 17 is to 19, 83.

19th. A, steer out of a French cow, and got by a Devon bull, 77 12
head and tongue, 3st. 1lb.; feet, 2st. 2lb.; heart, skirts, milt, sweetbreads, and kidneys, 1st. 6lb.; tripe, (without fat) reed, liver, lights, bladder and entrails, 5st. 4lb.; contents of entrails, 3st. 3lb.; blood, 8st. 12lb.; fat, 13st. 13lb.; hide and horns, 6st. 2lb. 39 1

Ratio as 10 is to 20.

20th. A Devon steer, four year old, 7ft. 6in. by 7ft. 6in. 80 8

This steer was fed with the above No. 10, 11, and 13; he was handsome and full quartered, good at all points—hence his weighing above the tabulated weight—

fat, 13st. 11lb.; hide and horns, 5st. 12lb.; head and tongue, 2st. 2lb.; feet, 1st. 9lb.;

st. lb.

heart and lights, 1st. 3lb.; liver and milt,
1st. 4lb.

It is not an easy matter to come at the weights of all the particular parts of the offal, as butchers are not very accommodating, but they may be extracted from the above statements: entrails empty and clean, equal weight with head, pluck, or blood.

21st. A Scotch ox, killed at Dumfries,
11 feet long, and 7 feet high, (this must
have been a dromedary, of 5 years' old)
the fore quarter, 40 stone; hind quarter,
30 stone; of 16lbs. I suppose an 8 is
wanting to quarter—head, 4st.; hide, 7st.;
and tallow, 12st. 80 0

I guess the 7 feet should have been the girt.

22nd. A bullock, 11 feet long from
rump to neck, 80 0
head, 4st. 8lb.; hide, 18st. 10lb.; tallow, 8st.

These two last I copied from the Farmer's Journal, dated 8th Nov., 1819. If he measured 11 feet from rump to neck, his whole length was 14 feet; head and hide might do for 11 feet, but there is not beef enough for an 8 foot length.

23rd. A Devon steer, 87 12
hide and horns, 6st. 10lb.; feet, 1st. 12lb.;
head and tongue, 2st. 5lb.; heart and
lights, 1st. 5lb.; liver and milt, 1st. 1lb.;
fat, 16st. 8lb.

- st. lb.
- 24th. A Herefordshire cow, 91 2
 She calved in August, 1807, and was
 killed in London, March, 1808, with 12
 stone of fat in her.
- 25th. A Durham ox, 3 year old, 91 3
 killed at Doncaster, in December, 1819,
 with 11 stone of fat in him.
- 26th. Another Sussex heifer, 8ft. 3in.
 by 8ft. 3in., weight 91 7
 This heifer weighed 18st. 12lb. under her mea-
 surement: her kidneys were scarcely covered
 with fat, owing to being harassed about in a
 caravan, to the day she was killed at Petersfield.
- 27th. A fat cow, 8ft. by 8ft., and 4ft.
 6in. high, weight 92 4
 Bought in London, and killed at Greenwich, by
 Mr. Price, in 1805, with 18st. 12lb. of fat in her.
- 28th. A Holderness steer; 8ft. by 8ft.
 weight 95 10
 hide, 7 stone; tallow, 12 stone.
- A Herefordshire ox, 4 quarters weighed 95 10
 hide, 8st. 8lb.; tallow, 12st. 2lb.; head,
 tongue, pluck, and feet, 6st. 1lb.; en-
 trails empty, 6st. 13lb.; blood, 2st. 12lb.;
 garbage or contents of entrails, 7st. 1lb.
 Total offal, (ratio 8.15 to 21.85) 35 10
 Hide, 22lb. heavier than No. 28.
- 29th. Baynton heifer, fattened by Sir
 Wm. Strickland, and slaughtered at Kil-

st. lb.
 ham, in Yorkshire; length, 7ft. 4in.;
 girth, 8ft. 7in.; height, 4ft. 7in.; weight 97 1
 She was killed at Christmas, 1807; head
 and tongue, 2st. 11lb.; feet, 1st. 7lb.;
 pluck, 2st. 3lb.; hide and horns, 5st. 2lb.;
 tallow, 14st. 6lb.; blood and entrails, 11st.
 10lb. Ratio as 8,35 is to 21,65: 87 6
 When cut up, she measured at top of the loin
 7 inches, and middle 9 inches, upon the ribs 8
 inches thick—Holderness breed.

30th. A Holderness steer, 3 year old,
 7ft. 4in. by 8ft. 11in. 69 13
 head, 2st. 8lb.; tongue, 10lb.; feet, 2st.:
 heart, 6lb.: liver, lights, and windpipe,
 2st. 4lb.: blood, 2st. 6lb.: hide, 6st. 7lb.:
 tallow, 14st. 3lb.: entrails empty, 2st. 6lb.:
 paunch & caecum, or animal heat, 8st. 11lb. 42 6
 Ratio as 8,697 is to 21,168.

31st. A Herefordshire steer—Dr.
 Dixon's Magazine, January, 1808, 110 8
 head, tongue, and pluck, 5st. 6lb.: hide
 and horns, 5st. 4lb.: blood, 5st. 10lb.:
 entrails, 15st. 1lb.; tallow omitted
 32nd. A Holderness cow: head and
 tongue, 3st. 1lb. 110 12
 blood, 2st. 7lb.: pluck, 2st. 7lb.: feet,
 1st. 9lb.: hide and horns, 5st. 12lb.: tal-
 low, 16st. 1lb.; entrails, 10st. 11lb. 42 6
 Ratio as 8,3 to 21,7.

- st. lb.
- 33rd. A Devon steer, 9ft. 2in. by 8ft. 6in., and 5ft. 9in. high, 149 4
 Live weight, 170 stone—Offal, 56 10
- 34th. A Holderness cow, killed at Boroughbridge, in the year 1822, no dimensions given; weight 120 0
- 35th. A Herefordshire ox, killed at London, 1807, weight 120 3
 head, tongue, and pluck, 9st. 4lb.; hide and horns, 9st. 2lb.; blood, 5st. 11lb.; entrails and their contents, 24st. 10lb. 49 13
 No fat or tallow given by the reporters.
- 36th. A Lincolnshire heifer, 5 years' old, 1818, weight 120 9
 Killed at Peterboro'; no offal given besides fat, 15 6
- 37th. The heaviest cow on record is the celebrated short-horned Craven heifer; length, 8ft. 6in. by 8ft. 9in.; height at shoulders, 5ft. 2in., and breadth across the back, 3ft. 8in. in three different places: live weight, 176st. 4lb.; allow the offal at same ratio as the heifer, No. 29; gives 49 stone of offal to 127 4
- 38th. A Durham steer, killed at Liverpool, 1819, 125 10
- 39th. A Lincolnshire ox, killed at Stamford; 9ft. long by 10ft. girt; was 6 foot high, and 3 foot across the loins:

	st. lb.
the dimensions are wrong, (see the Tables)	142 12
40th. A Herefordshire ox, 6 year old, killed at Wellington, as stated in Sherburn newspaper	150 4
41st. A Holderness ox, A. D. 1819, advertised	160 4
Hide, 10st. 12lb.; tallow, 16st.	
42nd. Ditto, ditto; hide, 9st. 2lb.; fore quarters sold, at four shillings, and and hind quarters at five shillings per stone, of 14lb.; tallow, 16 stone	152 9
43rd. The Herefordshire prize ox, in London, December, 1802,	157 0
his fore quarters weighed 82st. 6lb., and hind quarters 74st. 8lb., head and pluck, 8st. 3lb.; blood, 8st. 4lb.; hide, 9st. 7lb.; loose fat, 21st. 7lb.; feet and paunch, 10st. 4lb.	42 11
Ratio as 7,55 to 22,45.	
44th. A Durham ox: the 4 quarters weighed	158 4
his fore quarters weighed 78st. 8lb., and hind quarters 79st. 10lb., head, pluck, and blood, 12st. 9lb.; hide, 10st. 12lb.; loose fat, 16st. 3lb., and the paunch 11st.	Ratio 7,34 to 22,66. 50 10
45th. A Somersetshire ox, killed at Wellington, as stated in the Sherburn	

st. lb.
 paper, 1819, October, net weight and
 six year old, 161 0

46th. An Holderness steer, killed at
 Malton, 1819, 9 year old, 8ft. 8in. by 8ft. 11. 173 7
 hide, 12st. 2lb.: tallow, 21 stone, as per
 Leeds Mercury.

47th. The prize ox at London, in 1800,
 sold for 100 guineas, 176 6
 This ox's beef was exhibited in Fleet
 Market: his length when alive, was 8ft.
 11 inches: girth, 10ft. 11 inches, and
 height 6ft. 7 inches.

48th. A Durham ox, bred and fed by
 Mr. Champion, of Blythe, in Notting-
 hamshire, and killed in London, A.D. 1817 177 8
 weighed alive, at Leicester, 252st. 9lb.:
 head, 4st. 4lb.: hide and horns, 11st. 8lb.:
 feet, 8st. 4lb.: tongue, 1st. 21lb.: heart,
 61lb.: liver and lights, 8st. 21lb.: milt,
 bladder, and gall, 61b.: blood, 4st. 21b.:
 fat, 24st. 71b.: entrails empty, 4st. 21b. 68 10
 This was copied from the Farmer's Journal, un-
 der a supposition of the weights being 14lb. to
 the stone, having been weighed at Leicester,
 and that the loss in perspiration in driving to
 London, caloric or radical moisture in killing,
 and garbage emptied out of the paunch, amounted
 to 17st. 131lb.; if so, it is the first upon record;
 but if London stones of 81b., which the weight of

the tongue seems to warrant, then No. 30 is the identical steef, reduced to stones of 14lbs., and the loss in weight was 9st. 3½lb. To issue such reports without dimensions, is as bad as a tale told without date or place of its birth. Notwithstanding so many assertions of cattle measuring from 9 to 11 feet long, I have seen but few that when fairly measured was 9 foot long. In 1803, I saw a short-horned black and white bull, at Bretton Hall, in Yorkshire, that was 9 foot long, and 9 foot, 11 inch girt.

In 1806, I saw a horse in London, whose length was 9 feet; girt, 9 foot; height, 6ft. 10in.; his face was 3 foot long; his forelegs, 3ft. 9in.; and depth of body from the withers to breast, 3ft. 1 inch.

In London I gave one shilling to see the famous poll'd ox, from Surry: the handbills stated him at 11ft. 2in. long, and 11 foot girt: his lips, nose, and face, was taken into account, and girted at the first rib when stuffed full. It is really astonishing that people, otherwise sensible, should commit such ridiculous absurdities: and the scientific voyagers of discovery inform us they shot a bear, whose length from snout to end of the tail was I forget what. Now had they given us his length from ears to hips, and the girt round the breast, their readers that never saw a bear; or these tables, could form some index of his bulk, and by these tables could ascertain what he

weighed, and how he was proportioned. To measure a bullock of eight feet long, when standing as per figure, and measure him when his head is down, as if grazing, will measure $9\frac{1}{2}$ feet; and by taking in his face, will make him $11\frac{1}{2}$ feet. The celebrated Craven heifer was drawn in miniature, from which a plate was engraved, and the table of references states her at 11 foot 2 inches long, height 5ft. 2in., girth in middle of the body 10ft. 2in., and round the loins 9ft. 11in.; weight of the four quarters, 176 stone 4lb.—Incredible. Not being satisfied, I wrote to the Rev. Wm. Carr, who bred and fed her at Bolton Abby, in Wharfedale, who very politely furnished me with her true measurement, (see No. 32 above) and added that she lost weight after he sold her, by being drawn about in a caravan to be shewn. She was killed when four year old, at Huddersfield, and weighed 110st. 12lb., which proves she once weighed 5st. 10lb. above the tabulated weight, and died 10st. 10lb. under; loss by shewing; 16st. 6lb. The stating of the live weight for dead weight, or weight of the 4 quarters, is as preposterous as taking face and tail to the length of any quadruped; but there are some conceited beings who fancy they can see farther into a mill-stone, than the man that picks it, and methinks I hear one of them with a full-mouthed aspiration, ask how there can be the four quarters without inside or out.

side. Mr. Middleton, in his Agricultural Report for Middlesex, says the fair average weight of cattle per quarter was, in the year 1794,—bullocks, 14st. 4lb.; calves, 2st. 7lb.; sheep, 1st. 6lb.; and lambs, 12½lb. If an average was taken now, 1827, I presume the increase would be as considerable as the improved keep of stock. Bulls, at Linton, in Nottinghamshire, of short-horned breed, one eight months old, weighed alive,..... 53 stone.

One fourteen months, Do. Do. 80 Do.

One twenty-two Do. Do. Do. 121 Do.

of 14lb. to the stone, proves what good keep will do, by having plenty of good grass, and a milch cow to suck in the field; there hath been two and three such wet nurses being turned out with a young bull. This account would have been more tangible, had the reporter given the dimensions. I hope the Members of the Smithfield Club will in future cause all prize hogs, sheep, and cattle; to have their lengths and girths specified with their weight and age. A sheep grows most in second year, and ceases to grow at three. Heifers grows most in third year, and ceases in fifth. Steers grows most in fourth year, and ceases at six years' old, and however fed after, the bones will not grow any larger.

The public journalists do not give their readers much of a treat by publishing such crude undigested weights, without length or girth. Thus;

in Bell's Life in London, dated 25th March, 1827, says Mr. Peters' heifer was killed at Truro, in Cornwall; the net weight of the carcass was 1610lb.; one of the rumps weighed 130lb. a single rib weighed 23lb., and the depth of fat on it was 4 inches. We are not favoured with the name of the breed nor dimensions of said heifer; what the word *net* means, I know not, except the blood and entrails are rejected as the gross; the tare or skin I believe was included with all the other offal in what they call net weight, as 1610lb. is 115 stone. The Baynton heifer, No. 29, weighed 97st. 6lb., and was on the rib just double the thickness; this is another proof of the absurdity of giving undefined weights, and without measure, or specifying the weight of the several parts of the offal, is as unintelligible as the lowing of the ox, or bellowing of the bull, and degrades both the butcher and reporter.

The following is an account of an old cow, that had had a dozen or more calves, and was 17 weeks gone in her gestation of another; her length was 6ft. 8in.; and girt 5ft. 10in., her ribs and flesh was only one inch and a quarter thick, and sold at 3s. 6d. per stone when good beef was seven shillings, the hocks was given into the bargain.

The two fore quarters weighed,	13 stone 12lb.
The two fore hocks Do.	1 10
The two hind quarters, Do.	16 8
The two hind hocks, Do.	1 0

Total of the four quarters,..... 32 stone 11lb.
or 9st. 8lb. under the tabular weight.

st. lb.	st. lb.	st. lb.
1 Blood, ....2 8	Brought up, 12 2	Brought up, 23 7
2 Head, ....2 0	9 Paunch empty	16 Milt or
3 Tongue, ...0 3½	or tripe 3 0	Spleen, 0 1½
4 Palate, ....0 1½	10 Garbage, 5 12	17 Bladder, 0 0½
5 Feet, .....1 3	11 Heart, .. 0 4	18 Gall, ... 0 0½
6 Calf, .....0 5	12 Lights .. 0 8½	19 Kidneys, 0 2½
7 Do. bed and	13 Liver, ... 1 0	20 Hide and
contents, .1 8	14 Windpipe	horns.. 5 7
8 Guts full, ..4 1	and skirts, 0 5½	21 Tallow, . 2 9
	15 Sweetbreads	
	or pancreas, 0 3	
Carried up, 12 2	Carried up, 23 7	Total of offal 32 0

and is always allowed to the butcher for his trouble, skill, profits, and to cover bad debts; this is termed by graziers—sinking the offal, a technical term not strictly correct, as may be seen by the Market Herald always stating Smithfield prices as sold alive, at one penny a pound higher than Leadenhall market, for the carcase, viz. the four quarters only.

It is generally allowed as a fair average of the offal to be one-third of the live weight, viz. as 10 is to 20, therefore to ascertain the true weight or proportion of the offal to the four quarters, take 30 as a dead number, by which divide the

whole gross or live weight, for example :—take the Durham ox, in memorandums No. 44, the live weight was 209 stone divided by 30 gives 6,966, by which divide the offal 50st. 714 parts, gives 7,28 hundred parts of 30, leaves 22,72 for the four quarters, which is a small fraction under one-fourth of the gross weight, or as 7,28 is to 22,72, so is 50st. 10lb. to 158,4; again, divide 158,285 by the above 6,966, gives 22,72, or inverse ratio of 22,72 to 7,28. There are various opinions as to the proportions. Suppose the above 209 stones to give one-third for offal, would be 69st. 9lb.; this is a general opinion. Some says two-fifths of live weight, or 83 stone: others contend that the ratio is as 12 is to 17, or 86st. 7lb: the fact is that the offal was one stone 7lb. short of one-fourth. All this proves the absurdity of general opinions being no proof of truth; it also proves the weight of the offal to depend upon the quality of the particular animal; and its state of fatness, as is verified by this ox, and the above old cow, that the ratio will vary from one half to one fourth, but when worse than the old cow it is fit only for dogs.

There is another species of offal seldom noticed, as it lies in the four quarters, and the loss falls upon the consumers, viz. the bones. A fair average of bone to mutton and beef, is one pound of bone to thirteen of flesh; the above old cow had only 9lb. of flesh to one of bone.

The Norfolk black-faced sheep have only four pound 10oz. of bone in the four quarters. The average weight of bone may be ascertained by the length of the animal, also an average weight of the four quarters, if well fatted—3 feet long, 5 stone; and 5lb. of bone.

3½	long,	8	stone,	and	0st.	7lb.	of bone.
4	do.	12	do.	and	0st.	12lb.	do.
4½	do.	17	do.	and	1st.	3lb.	do.
5	do.	23	do.	and	1st.	6lb.	do.
5½	do.	31	do.	and	2st.	3lb.	do.
6	do.	40	do.	and	2st.	12lb.	do.
6½	do.	51	do.	and	3st.	9lb.	do.
7	do.	64	do.	and	4st.	8lb.	do.
7½	do.	79	do.	and	5st.	9lb.	do.
8	do.	96	do.	and	6st.	12lb.	do.
8½	do.	116	do.	and	8st.	4lb.	do.
9	do.	138	do.	and	9st.	12lb.	do.

and may be fatted so as to have double the above weight of mutton to a pound of bone, or 20lb. of beef to one of bone. The actual weight of bone in different breeds of cattle, might easily be ascertained by Agricultural Societies, offering a small premium to the managers of green yard in London, and dogkeepers in the country, that bails for a kennel of hounds, casualty cattle: the length of the animal should be taken, and the bones preserved as the flesh is boiled off, and weighed altogether; thus the superiority of one breed over another would be proved. The above

tables are decisively in favour of large stock, where the land will carry such. The Yorkshire short-horned, and the Herefordshire long-horned breed, are so near par, that it is not certainly ascertained which may be fatted to the greatest weight.

Suppose an ox 8 foot long, and 9 foot one girt, the tables gives only 9 foot, viz. 121st. 5lb.; increase per inch is 2st. 2lb., which add to 121st. 5lb. will be 123st. 7lb. and so on for any number of inches.

WHEAT. There are many varieties; triticum hybernum, or Lamas red wheat is the commonest. Cone wheat, white hore, eggshell, Poland, bearded; &c. Time of sowing is September, October, and November. Care should be taken to leave the ground as rough and open as possible, so the seed is but covered, in some marsh land and strong rich marles, that are apt to melt, and run by the winter rains and frosts, so as to have an impenetrable surface crust; which bakes so hard in summer, as to destroy all evaporation, (from the land under the crust) which is the food of plants, and when thus pent up may be aptly compared to interrupted perspiration in over-heated animals. When such land is corrected by road scrapings, sanded, or silted, it becomes the best wheat land possible: such is the Manhood; south of Chichester, producing

sixty bushels per acre, statute measure; also Pontefract park and vale; here the wheat grows upwards of six feet high; I have seen as tall at Shockerwick, near Bath. *Triticum aestivum*, or spring wheat, is obtained from Spain, Italy, Greece, &c., and as it is not sown till spring, it may be treated as other lent corn, by well harrowing and rolling. I have seen half a field of autumn sown English wheat, and the other half of the same field sown in spring with Talavera wheat; on 26th May, 1819, it was in ear; 8th June it was in bloom; and 28th July ripe. On 8th June the other wheat was in ear, and bloomed 18th, fourteen days later at harvest; and English wheats sown in spring were ten days later than the same sort sown in autumn—this in Buckinghamshire. On West Riding of Yorkshire hills, the wheats are six weeks' later, and from time of earing to blooming is 14 days. Where land is tired of clover, to get it firm for wheat, spring fallow, give a slight dressing of manure, and sow in May either rape or medicago lupulina, generally called trefoil; 30lb. of unmilled seed will not be too much; either rape or medic will produce good feed for sheep, who will tread the ground firm, and fit for wheat by one plowing. Some farmers eat down their proud wheats in April, others mow off the tops in May; either method is bad, as it not only throws it back 14 days at harvest, but will be one-third lighter produce for losing its feeders, *i. e.* leaves.

Dibbling wheat by hand, instead of drilling, is recommended by some writers. Suppose the lines dibbled to be one foot apart, gives 43,560 feet of line in one acre; and the wheat dibbled into holes, four inches apart, and four grains of wheat to each hole, is twelve grains per foot, or four holes per foot; and three grains per hole is 12 grains per foot also, or 522,720 grains per acre, and 300 grains per cube inch is an average of five samples, that varied from 225 to 335 grains per inch, is 10,410 grains to a pint, or six gallons, one quart, and 222 grains per acre; but if the lines be only nine inches apart, an acre will take eight gallons, one quart, and 900 grains. This may answer in the first-rate wheat land, where it always tillers well; but in inferior land two, three, or four bushels, sown broadcast, will not be too much; and on clay tills, and cold calcareous stony or flinty clays, five bushels will not be too much; for if sown with five bushels of red wheat, at 268 grains per inch, and another acre sown with four bushels of white wheat of 335 grains per inch, each acre will have exactly the same number of seeds, and such land will produce no more straws than there is plants. The small grained white wheat brings better prices from market, than the large grained red wheats.

The principal advantage in drilling corn in land that washes and runs together and bakes to a crust, is the intervals may be hoed so as to

admit rain to sink in, and allow evaporation to rise, besides checking the weeds. The next care is hand-weeding, particularly where cockle (*agrostima githago*) or corn campion abounds, as its seeds are so near the same size and weight of wheat, that no machinery can extract them. As to the ear, cockle, pepper corns, tracks, or blacks; there is no guarding against them any more than smut; they are all one thing under different names, and are caused by the wireworm and other grubs, biting the roots; or when in bloom, gets injured by winds, frosts, or heavy rains.

Cut your wheat when the knots or straw joints changes from green to red. In the year 1823, our wheat was not ripe until first of October; straw bad, and corn unsound. In the hot summer, 1826, our wheat was all shorn by the 8th of August; we are upwards of 940 feet above sea level, N. L. 54°. On eighth of August I collected a handful of wheat ears, and rubbed out the corn, and culled out the largest, 180 filled a cube inch box; they weighed seven pennyweight and nine grains, viz. 180 grains, troy. I kept the whole until January in a drawer, and then found the wheat had lost 20 per cent. in bulk, and 19 per cent. in weight, so that the inch box held 225 grains of wheat. Thus dried in, a fair average crop of wheat is 26 bushels, and 13 hundred pound of straw, and will take a

man four days to shear it: twelve sheaves of this wheat, at three feet girt, tight, will produce a bushel of wheat.

In Midland counties an acre will produce of
 Wheat, 20cwt. average, 13cwt. 0qr.
 Chaff, 5 do. do. 3 do. 2 do.
 Straw, 14 do. do. 13 do.
 Stubble, 18 do. do. 12 do.

(See Harvesting and Threshing.)

The coat or skin of red wheat is 8 to 9lb. per bushel.

Do. of white seven to eight pounds per Do.

I have had wheat ground that lost only two pounds per sack in the mill; if more than three pounds is lost, there is something wrong either in the mill or the miller, which frequently happens, as is proved by the following facts:—

20 bushels of wheat weighed 1210lb. and produced
 140 pounds of fine flour.

801 Do. of household Do.

228 Do. bran and pollard.

41 Do. lost in the mill.

This honest miller was paid for grinding and dressing ten shillings.

Four bushels of wheat produced 14 stones of 14lb. and 12 pounds over; 41lb. of bran and flour that adheres to it, 8lbs. lost in the mill; weight of wheat 252lb.

A load of 40 bushels I bought at £21 4s. 0d.
 Produced five sacks of }
 fine flour, } £20 0s. 0d.
 Do. of second or house- }
 hold Do. 1 sack, } 3 15 0
 Do. of thirds, two and }
 a half bushels, } 1 12 6
 Six double bushels of }
 pollard, } 0 13 6
 Two sacks of bran, 0 6 0—£26 7s. 0d.

16 bushels of wheat weighed 976lbs.
 Produced household flour, 476 }
 Do. fine flour, 249 } 976
 Do. pollard and bran, 227 }
 Loss in the mill, 24 } honest Ralf.

The pollard and bran is 14lb, from each bushel of wheat; in course it is nearly half flour.

Four bushels of wheat, weight 236lb. and 825 grains per inch, produced in flour 180; pollard and bran 48lb.; lost in mill 8.

Eight bushels produced in fine flour 356lbs; coarse flour, 60; pollard and bran, 80; lost in the mill 8lbs. Multure, 8lb. for grinding and 2lb. for dressing.

Four quarters of wheat will produce five sacks of fine flour, each sack statute weight, viz. 280lbs. or twenty pecks of fourteen pounds. When fine flour is worth 64s. per sack, seconds is worth 60s. Bran and pollard, in Middlesex, is double bushels upheaped, viz.---

16 bushels upheaped is one quarter :
of pollard, £1 7s. 7d.

16 Do. strike measure, is one Do.
in some places,..... £1 3s. 0d.

8 Do. Do. is a quarter in this district, £0 11s. 6d.

One bushel, strike measure, weighs 23 pounds.
One bushel of bran, strike measure, weighs 15
pounds, and is worth eleven-pence.

A quarter of pollard, double measure, weighed
320lb. viz. 40lb. per double bushel, strike measure.

A quarter of bran, double measure stricken,
weighed 220lbs., viz. 28lb. or 14lbs. per single
bushel.

A quarter of wheat weighed, 454lbs.

Produced fine flour, 340

Do. pollard, 90

Do. bran, 18

Loss in mill, 6—454.

The pollard from 8 bushel of wheat worth 6s.

The bran from Do. Do. 1s.

It is above stated that fourteen pounds is a
stone, or peck of flour, and will make what is
termed a peck loaf, that will weigh seventeen
pounds, six ounces, or two half peck loaves of
8lbs. 11oz., or four quatern loaves of 4lbs. 6oz.
If the flour is allowed to become stale by stand-
ing in the sack a few weeks, twelve pounds of
flour will make the above quantity of bread, (see
Baking and Bread.) Where there is plenty of
chamble's meat and vegetables, three pounds

and half will be the weekly consumption in flour for one man, and this quantity will vary up to 10lbs. per week, where he lives on bread, pudding, and pastry.

WHEELING, at a halfpenny per score yards distance: a cube yard of dung at eleven wheelbarrows' full, is four-pence a mile exactly, no allowance for returning with the empty barrow; and if earth or gravel, it will be 14 wheelbarrows' full to remove a cube yard at the same price, is only three-pence farthing a mile, and the price for filling from three-halfpence to sixpence, according to depth and texture of the materials. These were the prices when nine shillings a week was the day labourer's pay.

WHITESCOUR; a disease in sheep. To cure, house them or put them upon dry pasturage, dissolve half a pound of salt in a quart of verjuice, put in half a pint of common gin, bottle it up for use, three table spoonsful is a dose, and if the scowering do not stop on the second day, give it another dose. This is something like the distemper in calves, which I cure by giving 4oz. of English rhubarb, fresh taken up, the roots clean washed, bruised, and gently stewed in a quart of milk, until it is reduced nearly half; let it cool so as to be only warm, and drench the calf with the whole; it will so cleanse the inside, that

by giving it new milk a day or two, works a perfect cure; I never knowed it to fail.

WINE, home made: macerate the roots or fruit green or ripe in water, a gallon to a gallon of roots or fruit, and in a few days (by stirring the whole every day) it will begin to ferment; it must then be strained off, and two, three, or four pounds of lump sugar be added to each gallon of liquor, according to its acidity: put it into a cask twelve months, and it is then ready for use or bottling, (see Fermentation.) Parsnips makes excellent wine; flowers of cowslips makes a wine that is admired by the ladies also; and vine leaves, when red in the stem before they fall, makes an excellent wine. The same simple process of maceration or steeping in cold water, frequently stirred, answers for all sorts. Elder flours thus made into fever-water or wine.

WIREWORM, commits its depredations in March and April in the south, and in April and May in the north. When it first appears from the larva or egg, it is white, with a brown head, and afterwards it becomes brown with a black head. In July and August, nature furnishes it with wings, and is then known by the names of tom-spinners, tom-taylors, longlegs, &c. They deposit their larva in August and September, and are hatched by the sun in the spring, in

clover lays, meads, and pastures; in most other places they get destroyed by plowing, &c. By liming old leys a year or two before you break them up, you destroy the brood, not only of the wireworm, but of many other grubs and slugs. The superiority of the succeeding crops will amply cover the expence of liming, not only by extirpating the wireworm, but by an augmentation of farinaceous matter to the grain. Thus liming, I consider to be better husbandry than paring and charing; as to burning to ashes, it is totally absurd.

WOAD (*Isatis tinctoria*) or dyer's weed, is a biennial, and is used in dying; it is sown with lent corn, like clover; four bushels of seed to an acre, and produce average twenty-five hundred weight. The crop is to be gathered at three times and kept separate, as the first is the best, and is worth thirty pounds a ton.

WOLDS, are large open tracts, humbler than Downs; such were York wolds before they was inclosed and divided. Wealds or wilds, are woody districts, as West Kent, Eastern Sussex, Hampshire in part, and Forest of Dean, in Gloucestershire.

WOLF'S teeth in horses' mouths, in the upper jaw, as tusks between the front teeth and

grinders, which hinders him from masticating his meat, and lets it fall unchewed; this causes him to fret and bite the bottom of his hayrack and front of the manger continually.

WOOL. The coarsest I ever saw is the Muffalo sheep's wool, not unlike goat's hair or deer-pens. The finest is Saxon and Spanish; the medium and most useful is British, (and all the world knows the quality of British oak.) The finest British wool is grown in Shetland Islands; next is Morph Common, near to Bridgenorth, in Shropshire, 3,600 acres that summers 20,000 sheep; that produces 1414lb. of wool. The long combing wool for worsted stuff is from Teeswater, Lincoln, Leicester, and Romney marsh, (see Sheep.) Short fine clothing wool is grown upon poor thin calcareous elevated pasturage, as South or Sussex downs: Heytsbury and Chiltern are part of Salisbury plain, it extends to Marlboro' downs, all in Wiltshire: Cotswold hills, Gloucestershire; Mendip hills, Somerset; Malvern hills, in Hereford and Gloucestershires; Cheviot hills, in Northumberland; and the Grampion hills, Bradalbanshire, in Scotland. Long-woolled sheep pays better than short-wool breed, by two or three shillings per head, in Midland counties; not so on downs. I had fifty Merino sheep shorn, that produced 200lb. of wool, at five shillings a pound; a fair

average of Lincoln or Leicester's may be eight pounds of wool. Flock-masters make no other distinction besides sheep's wool and lamb's wool; it is the woolsorters that make the distinction of one shear and two shear ewe and wether hogs, it being shorter and finer than the wool of older sheep. Woolsorters hath got to such proficiency that they can sort out from any lot of fleece wool, some that will be nearly four times the value per pound as what the lot cost. Suppose Merino wool at six shillings a pound; they will sort out some worth a guinea per pound.

WOOL WEIGHT.—11bs., one clove; 2 clove, one stone; 2 stone, one tod; 61 tod, one bag; 8 tod and 16lbs., one peck of 240lbs.; 18 tod, one sack; and 12 sacks is one last, 6240lbs. In Sussex, is a tod; a wool pound, in Yorkshire, is 24oz.; and what they call a seal pound is 16oz.; six seal pounds is called a whartern.

WORMS, in cows' backs, are grubs. (See Burrel and Wharnel.)

WARD land, is thirty acres.

WOKBINGS. Arable farm fields are plowed into loughs and furrows of various widths, and hath distinct names, viz. stitches, ribs, ridges of four furrows called two boat ridges, and when wider than six or seven bouts they are called

lands of so many feet wide, but seldom more than fourteen or fifteen feet wide, extent, yokeings, and their breadths depends upon the length of the field; thus, when the horses are yoked to the plow, the plowman sets his first ridge at pleasure, and keeps gathering to that all the day: next morning he sets a new ridge, as far from the last furrow as the last furrow is from the first ridge; thus his work is set out for the day—hence the epithets of yokeings and day's work, and they will vary in size according to the strength of the cattle, land, and size of the field, as much time is lost in turning at the ends in small enclosures. A draft or drought of four to twelve hundred weight is required to plow level ground, average 8cwt.

YELLOWING, in horses, or *acta*, is a species of jaundice; its origin is a disordered gall.

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